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PRELIMINARY ARCHAEOLOGICAL STUDY
MACKENZIE CORRIDOR (SECOND REPORT)



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PRELIMINARY ARCHAEOLOGICAL STUDY
MACKENZIE CORRIDOR
(Second Report)

by
Jacques Cinq-Mars

with Appendices by

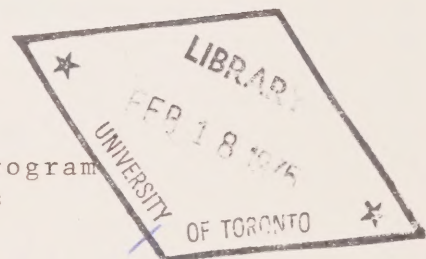
Paul F. Donahue

and

Timothy C. Losey

for the

Environmental-Social Program
Northern Pipelines



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The data for this report were obtained as a result of investigations carried out under the Environmental-Social Program, Northern Pipelines, of the Task Force on Northern Oil Development, Government of Canada. While the studies and investigations were initiated to provide information necessary for the assessment of pipeline proposals, the knowledge gained is equally useful in planning and assessing highways and other development projects.

The research was carried out and the report was prepared under the auspices of the Arctic Land Use Research Program, Northern Natural Resources and Environment Branch, Department of Indian Affairs and Northern Development, and in collaboration with the Archaeological Survey of Canada, National Museum of Man, National Museums of Canada.

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1. SUMMARY

This report deals with the 1973-74 continuation of our exploratory study of the archaeological potential of the northern Yukon-Mackenzie Valley pipeline corridor (Cinq-Mars 1973). This year's major objectives consisted primarily of attempts to finalize previous assessments concerning the archaeological content of a number of areas as well as efforts to investigate regions which were not previously explored. The research procedure remained basically the same, and sessions of field work, varying in length from two to ten weeks, were carried out by various crews in the following areas (1) east bank of the Mackenzie River, from Fort Simpson to Fort Good Hope; (2) Travaillant Lake area, located at the southwestern end of the Anderson Plain; (3) Porcupine River Basin, including such areas as the Old Crow-Porcupine confluence system, the series of terraces and ridges separating the southeastern Old Crow Flats from the Porcupine River, and portions of the Bell River and Rat River drainages; and (4) the western half of the Yukon Coastal Plain.

Although efforts were made to investigate potentially important localities, few prehistoric sites were actually located along the eastern margin of the Mackenzie River. This is partially due to the nature of the terrain (permafrost and vegetation cover), the degree of accessibility of potential locations, and certainly to our (often unrecognized) poor understanding of many aspects of prehistoric settlement and exploitation patterns. Among the important finds are some of the historic sites which were discovered, respectively, near the mouth of the North Nahanni River (Old Rocky Mountain Fort), at Old Fort Point south of Fort Norman (Fort Norman II), and on Manitou Island opposite Fort Good Hope (Fort Good Hope III). In all instances the remains appear to be extensive and well preserved, and their excavation would provide us with valuable information on the period of Euro-Canadian/aboriginal contact.

Work in the Travaillant Lake area resulted in the discovery of a number of prehistoric sites which appear to represent a late Athapaskan type of manifestation. Because of their geographic location, they may also yield information on prehistoric relationships between the lower Mackenzie Kutchin and non-Kutchin groups, on the one hand, and between these Indian groups and the Mackenzie Delta Eskimo on the other hand.

The series of investigations carried out in the Porcupine Basin have resulted in a definite confirmation of the great archaeological importance of the Old Crow-Porcupine confluence area. Both buried

and surficial materials were found on terraces overlooking the Old Crow River Canyon. The more extensive work done at the Old Chief site and at a few of the middle Porcupine lookouts allows us to expect in this region a complex cultural continuum of great antiquity. Sites located along the southeastern rim of the Old Crow Flats and to the north of the Bell River appear to be related to the very widespread Palisades-Tuktu type of manifestation which has also been found along the northern border of the same drainage basin. Most of the other sites discovered in this general area are either non-distinctive or representative of late prehistoric and/or contact situations. One site located near the headwaters of the Rat River has yielded material which can only be labelled "British Mountain" for want of a better term.

Our very brief survey of portions of the Yukon Coastal Plain resulted in only a few finds consisting of clusters of tent-rings which are probably late prehistoric/early historic and which appear to occur quite frequently along the lower courses of a number of major streams.

The general picture emerging from this and earlier research across the entire Corridor area is one of cultural complexity and continuity. Thusfar the most important area in terms of known and expected archaeological content is the middle Porcupine basin. This evaluation is based upon the fact that the area has already yielded material dating to the late Pleistocene as well as increasing evidence for a possibly complete Holocene continuum. It also has relatively high site density, including a number of extensive and stratified deposits. For more or less similar reasons, although on a lesser scale, the western portion of the Yukon Coastal Plain is also considered particularly sensitive.

With two exceptions -- the Fisherman Lake area, with its impressive site clustering and its possible early cultural manifestations, and the lower Delta, with its large prehistoric Eskimo settlements -- the Mackenzie Valley portion of the Corridor has yielded little in terms of extensive and/or diagnostic prehistoric deposits. Definite evidence pertaining to the assumed early post-glacial human population movements has yet to be found, and most of the scattered archaeological sites can be dated to later portions of the Holocene. Some of these sites, however, have provided us with information suggestive of complex prehistoric relationships, associations or replacement situations occurring between local and neighbouring populations. For these reasons, including our hopes of finding earlier cultural remains, we cannot afford to dismiss the archaeological potential of this portion of the Corridor.

2. INTRODUCTION

2.1 *General Nature and Scope of this Presentation*

The purpose of this ongoing study (Cinq-Mars 1973) is to investigate the archaeological potential of the Mackenzie Corridor. It can be described as an attempt to evaluate the impact that possible pipeline construction activities would have on archaeological remains and to define the means necessary to either protect or salvage this important, non-renewable, information.

The type of primary archaeological information present in the vast area under consideration consists of the material remains of past aboriginal societies, representative of the long cultural continuum which, among other things, has led to the development of the historically known Eskimo and Indian groups. Evidence pertaining to very early New World cultural manifestations and subsequent cultural-developmental stages has also been found in that portion of the Corridor which corresponds to the northern Yukon unglaciated Pleistocene refugium.

In addition to remains belonging to the aboriginal prehistoric period, the Corridor area also contains a relatively large body of information on the time-transgressive contact or transitional period (period of initial Euro-Canadian penetration and exploration) which was to lead ultimately to the recent historical settlement configuration in all the sub-areas of the Corridor.

2.2 *Specific Objectives*

The nature of both the physical and cultural variables expected or found within the Corridor area imposes a certain number of limitations in terms of the feasibility of a total archaeological site inventory. With a few exceptions, the known archaeological sites consist of shallow cultural material deposits scattered across vast expanses of tundra and boreal forest. Accessibility to sites or site areas is very much limited by the boreal environment itself and by our poor understanding, for this whole area, of the major aspects of prehistoric cultural ecology. Thus, in an attempt to evaluate the archaeological potential of the Mackenzie Corridor, one has to resort to a somewhat biased sampling method which consists primarily of selecting a number of areas on the basis of their already-known archaeological content or their expected archaeological potential.

Briefly, the major objectives of this second year of our exploratory study were as follows:

- 1) an attempt at finalizing our initial evaluation of a number of archaeologically important areas and determining whenever possible their spatial and temporal extent;

- 2) to investigate other potentially productive but unexplored zones of the Corridor area;
- 3) to use the above-mentioned information in order to determine more clearly the sites' or site-clusters' characteristics and distribution, the relationships between various types of archaeological deposits and a number of cultural-environmental variables, and finally, the salvage needs with regard to pipeline construction activities, within the framework of archaeological research orientation.

2.3 *Relationships with other Pipeline-Associated Activities*

The frame of reference of an archaeological study of this type differs somewhat from that of other environmental research projects in that the bulk of archaeological information is totally non-renewable. Once disturbed or destroyed by whatever kind of agency, it becomes for all practical purposes, scientifically useless. Certainly, artifacts or souvenirs may still be collected for museum or private displays but the contextual situation of the entire deposit which is of some use for interpretation purposes has been erased.

At this time, it is only possible to present evidence to the effect that, archaeologically speaking, a number of sub-areas of the Corridor are likely to be more important and sensitive than others. This type of evaluative statement is frequently based on numerous and convergent lines of evidence: ethnographical, historical, environmental and palaeo-environmental and, finally, archaeological.

Again, these various avenues of research can only be used to assess, with various degrees of certitude, the potential impact that extensive industrial activities would have on the known or expected archaeological content of any given area. Such a discussion does not replace the actual field-control and monitoring which will have to be incorporated in a final pipeline construction design.

With regard to the relationships between archaeology and other types of research undertaken within the framework of the Mackenzie Corridor Social-Environmental Program, it should be noted that there may be a good deal of exchange of information. While archaeology does rely heavily upon information gathered by workers from a number of environmental disciplines, it is also in a position to provide them with useful data pertaining to their own research interests. For example, archaeological information on prehistoric resource exploitation and subsistence patterns can be of great help in our understanding of the historical antecedents of modern caribou herds or fish resources.

Finally, archaeology is in a position to provide a wide range of interested communities with valuable information concerning numerous aspects of the traditional history of the various aboriginal groups which still inhabit the confines of the Mackenzie Corridor. And for the sake of future generations, be they Indian, Eskimo or non-aboriginal, it is the responsibility of archaeologists as well as pipeline constructors to preserve, salvage and study this body of information which may represent from ten to thirty thousands of years of human adaptation to a boreal environment.

3. RESUME OF CURRENT STATE OF KNOWLEDGE

A brief overview of the history of archaeological research undertaken within the limits of the Mackenzie Corridor as well as a summary of the archaeological content of this vast area have been presented earlier (Cinq-Mars 1973). Emphasis has been placed on the fact that after more than twenty years of field-research, much of the area under consideration remains unexplored. Our knowledge of the archaeological content of the Mackenzie Corridor is very much restricted to two major regional centers (northern Yukon and Fisherman Lake area). Information gathered from these regions as well as from neighbouring areas (southwest Yukon, Great Slave Lake region, Central Alaska) has sometimes allowed archaeologists to interpret more or less cautiously a number of finds located within the Corridor itself.

With the exception of a number of large-scale archaeological projects (all oriented toward salvage measures), very little new archaeological research has been undertaken, between 1971 and 1973, in the study area. A certain amount of unreported (continuing) work has been carried out in the Fisherman lake area and the results of archaeological surveys undertaken by D. Clark along the central-eastern border of the Corridor will soon be made available (Clark n.d.).

On the basis of recent discoveries made in the Porcupine basin (Irving and Harington 1973; Irving 1971), the expected cultural time depth in this unglaciated portion of the Corridor is considered to be in excess of 30,000 years. As for the glaciated sector of the Corridor (most of the Mackenzie valley), it is very likely that its recoverable archaeological content will range in time from the contact or transitional period to the Pleistocene-Holocene boundary.

Although a number of archaeological finds (Fisherman Lake area) are considered to be representative of late Pleistocene cultural manifestations, the bulk of the relatively well dated material falls well within a Holocene time-span. In fact, very few of

the discoveries made in the Corridor area exceed a 6,000 - 7,000 B.C. limit, thus leaving open numerous facets of the archaeological-geological controversy concerning a late Pleistocene-early Holocene Mackenzie migration corridor.

Most of the archaeological assemblages discovered within the study area can be assigned to the following categories:

- 1) those which are often considered to be representative of early Holocene movements of populations across or into deglaciation regions; they often fall under the labels of Palaeo-Indian or Palaeo-Arctic traditions.
- 2) those which appear to have affinities on the one hand with an easterly Archaic tradition and, on the other hand, with a widespread and poorly understood boreal interior blade-microblade-burin technology;
- 3) those which are part of a cultural continuum characterized also by microblades and burins, but which are considered to be spatially restricted to a tundra and/or coastal environment; they are believed to be early progenitors of later Eskimo cultural manifestations;
- 4) those which can be assigned to late boreal interior Athapaskan developments or late coastal prehistoric Eskimo stages; attempts have been made to relate some of these manifestations to specific historically known Athapaskan and Eskimo sub-groups.

Needless to say, these categories should be viewed only as useful approximations of a complex series of prehistoric cultural events which, as we have noted, have a potentially great antiquity. Even if the supportive evidence is meager, it is nevertheless possible to visualize the entire study area (or large segments thereof) as potentially important contributors to a new or more complete understanding of the prehistory of the New World.

4. STUDY AREA

A general presentation of the Mackenzie Corridor area including a brief survey of a number of archaeologically relevant parameters can be found in last year's report (Cinq-Mars 1973). Additional information will be incorporated in the description of the 1973 field-work results as well as in some of the following appendices.

The specific sub-areas of the Mackenzie Corridor which, in the course of the present research project (1972 and 1973 field seasons), have received various degrees of archaeological attention are as follows (Fig. 1):

- 1) Yukon Coastal Plain - Archaeological work in this particular area consisted of a short-lived helicopter survey (see p. 15) and of a foot traverse which was undertaken along the easternmost portion of this area; the latter also extended along the northwestern edge of the Mackenzie Delta (Gordon 1972; Cinq-Mars 1973).
- 2) Porcupine Drainage - This vast intermontane drainage basin has been subjected to foot, boat and helicopter surveys as well as intensive testing and/or preliminary excavation (see p. 14), especially along the middle Porcupine River, the series of hills bordering the southeastern rim of the Old Crow Flats, the lower course of the Old Crow River and portions of the Bell and Rat river drainages (Cinq-Mars 1973; Donahue 1973).
- 3) Lower Mackenzie and Delta - Work consisted of the already-mentioned foot traverse along a portion of the eastern foothills of the Richardson Mountains, of a boat and foot survey of various parts of the Delta with special attention given to the East Channel and segments of the Caribou Hills (Gordon 1972), of excavation at the Whirl Lake site (Gordon and Savage 1973) and of an aerial survey of the southern Anderson Plain in addition to reconnaissance and intensive testing of a number of sites in the general area including and west of Travaillant Lake (see p. 11).
- 4) Middle Mackenzie - Archaeological survey and preliminary excavations were undertaken along the western bank of the Mackenzie River between the Keele and East Little Bear rivers; extensive foot, boat and aerial reconnaissances were also carried out along the eastern bank of the Mackenzie River as well as in numerous adjacent lake regions, between Fort Simpson and Fort Good Hope (Millar 1972; Cinq-Mars 1973; Losey 1973a, b; see also p. 8 and Appendix B).

5. METHODS AND SOURCES OF DATA

The general research procedure is similar to that outlined in last year's report (Cinq-Mars 1973). It has involved extensive literature survey, maps and air photography analysis, field-work and laboratory analysis.

In order to provide the workers with a useful, initial research tool, last year's report included a partially annotated bibliography dealing with the archaeology of the Corridor area. The present report contains a similar work dealing with environmental and palaeo-environmental sources (see Appendix A). A third annotated list on ethno-historical sources has yet to be completed.

At the laboratory analysis level some of the new research undertakings involve participation in a new and enlarged neutron activation analysis program, submission of a number of C.14 samples obtained in the course of this project for age determination, analysis of the Old Chief site faunal remains and a planned X-ray fluorescence analysis of a raw material.

6. RESULTS

6.1 *Introductory Statement*

The 1973 summer investigation was divided into five sub-projects corresponding to specific areas of the Mackenzie Corridor (Fig. 1). Some regions were visited because an obvious archaeological vacuum needed to be filled; others were selected primarily in order to confirm and supplement previously made evaluations. The following is an overview of the actual field-work. An attempt is also made to describe a few of the archaeological situations and research problems which are slowly emerging from this study.

6.2 *Summary of Field Activities*

6.2.1 *Sub-project 1: Mackenzie River* (Losey 1973a and b)

This major portion of the entire project was carried out by a crew of seven under the direction of Timothy Losey, along the eastern side of the Mackenzie River, between Fort Simpson and Fort Good Hope (See Appendix B for a more complete description of this sub-project).

Although efforts were made to investigate as many localities as possible, the major portion of the work was oriented toward systematic survey of a number of already-defined potentially productive areas found between the Mackenzie River and the Franklin Mountains. These included the regions around Willowlake River, River Between Two Mountains, Blackwater River, Fort Norman area, Sans Sault Rapids area and Fort Good Hope area.

The Willowlake River area, which was surveyed inland for a distance of 13 river miles, has yielded a small number of new sites. They all belong to the contact and post-contact periods. The most important site found during this phase of the project is actually located outside of the Willowlake drainage, on the east bank of the Mackenzie, opposite the mouth of the North Nahanni River. The site is certainly of historical interest as it may correspond to that of Old Rocky Mountain Fort which was established between 1800 and 1805. The remains consist of two fallen chimney structures and a number of ground features such as cellar depressions, rectangular walls, linear stone arrangements, etc.

The River Between Two Mountains area was surveyed as far as the pass across the McConnell Range. Of the three sites discovered, two are historic and one is prehistoric. The latter is located on an alluvial terrace near the McConnell Range pass; the material, which consists of welded tuff flakes, a biface made of argillite and faunal remains associated with a hearth, was found at what seems to be "the very base of a well developed forest soil horizon" (Losey (1973a:5). The two historic sites consist of a small cabin and the remains of a recent trading post located near the river mouth.

Three historic sites were found in the vicinity of the mouth of the Blackwater River. One appears to be that of a recent trading post. Another one which may be quite extensive contains one cabin with a stone fireplace, as well as a number of cellar depressions. The third site also corresponds to a recent trading post. Despite extensive testing, no prehistoric remains were uncovered.

Work in the Fort Norman area consisted of field-investigation as well as gathering of ethno-historical information from the local inhabitants. Three sites were found in the vicinity of the settlement. The first two are located near the village itself. One consists of the remains of what has been identified as "portions of a bark canoe seats or cushions" (Losey 1973a:8). It was found embedded in the lowermost of "three alluvial terraces extant in the immediate area of the settlement" (ibid.). The second site, found in the same area, contained the remains of a hearth, some faunal material and flaking detritus including welded tuff. The third site is located along the north bank of the Great Bear River, two miles upstream from its confluence with the Mackenzie. The prehistoric finds consist of chert, shale and welded tuff flakes, all recovered from the upper 10 centimeters of the bluff.

Thanks to the ethno-historical information, in this same general area, it was possible to find traces of what may have been the original Fort Norman II which was abandoned in 1851. The site is located on the southeast bend of the Old Fort Point, on the west side of the Mackenzie, approximately 50 kilometers upstream from Fort Norman. A number of surface features were discovered. They consist primarily of stone chimney piles and cellar depressions. Additional historical material was found eroding out of the bank of the Mackenzie in the vicinity of the above-mentioned features. Two strata were noticed. While the site does not seem to have suffered from recent human activities, the erosional action of the river makes it imperative to salvage what remains (Losey 1973b:63).

Despite extensive foot traverses, the Sans Sault Rapids area has yielded very little. One flake made of basalt was found at Jenny Lake and a heat altered shale flake was discovered along the shores of Ration Lake. The mouth of the Donnelly River, to the north of the rapids, was briefly investigated. A concentration of bone fragments which may correspond to a hearth was found near an abandoned cabin.

The only important prehistoric site found in the vicinity of Fort Good Hope is located near the north arm of Ontadek lake, approximately seven miles to the east of the settlement. The site, which lies on the slopes of a small esker, has yielded both surface material and excavated remains (lithic and faunal material as well as trade goods). According to Losey (1973b:40), the site "appears to be the result of a single occupation apparently originating in the Early Contact Period."

Some time was also spent investigating the remains of what is thought to be Fort Good Hope III, which is supposed to have been abandoned in 1836. The site is located on the east bank of Manitou Island, opposite to the present-day Fort Good Hope settlement. A number of surface features were tested and mapped. They consist of chimney structures, cellar depressions and possible wall outlines. Evidence of a buried occupation level was encountered at a depth of approximately 50 centimeters below the surface, witness to frequent and powerful floods. According to Losey (1973b:59), the material recovered from the site exhibits an excellent state of preservation. This, in conjunction with the extent of the deposit and the amount of available ethno-historical information "require that future research be designed to incorporate long-term excavation by qualified historic sites archaeologists."

The last part of this particular sub-project consisted of an aerial reconnaissance of a number of lakes found along the eastern edge of the Mackenzie Corridor. In most cases the observed cultural disturbances correspond to recent aboriginal activity areas (fishing and trapping camps, etc.). One small prehistoric locality was found at the southern end of Kelly Lake. It consists of a rather non-extensive deposit of calcined bones and welded tuff flakes. The west arm of Fish Lake has also yielded two sites. Both are surface finds, but one (which may correspond to a site previously found during the 1973 field-season) can be traced back to the base of a two meters thick coarse sand terrace, thus suggesting a possibly great antiquity.

6.2.2 *Sub-project 2: Travaillant Lake Area*

This particular phase of the study lasted approximately one month, from the middle of June to the third week in July. The work was carried out by one field-assistant and myself in the general vicinity of Travaillant Lake. As we had been informed that an archaeological crew attached to the Mackenzie Highway project was doing work in the same area, every effort was made to avoid complication and duplication of survey efforts.

Three days were spent at Travaillant Lake itself, without much success. Attention was given particularly to the northern and western shores of the lake. The few sites found belong to the historic period. One of them consists of an aboriginal platform burial which had been found earlier by a local informant, at the northwestern end of the lake. While certainly belonging to the transitional or early post-contact period, the structure appears to be traditional, i.e., non-European. It resembles a find made a few years ago along the Peel River, upstream from Fort McPherson. The site was observed and left untouched.

Among the other historic localities, we can note an abandoned trapping cabin site located above the mouth of the Travaillant River and a small campsite containing a partially stone-lined (circle) hearth located on a low beach at the mouth of a creek on the west shore of the lake. An effort was made to locate the head of a supposedly important trading trail leading from Travaillant Lake to the Anderson River, but without success.

Investigations in the vicinity of the outlet of the lake were cut short when it was discovered that the area had already been surveyed by members of the above-mentioned crew. Only traces of historical activity were noticed. However, it should be mentioned that, according to recently gathered ethno-historical information, the entire outlet area was very intensively utilized for its fish resources by members of the Arctic Red River community. Thus, it is likely that numerous traces of a similar (or at least late) prehistoric situation are to be found, buried somewhere along the southern shore of Travaillant Lake. Unfortunately, this low level beach system may yield only badly disturbed and homogenized prehistoric-historic material.

The next survey was undertaken at Sandy Lake, located to the northwest of Travaillant Lake. In addition to numerous recent aboriginal localities, a total of five prehistoric sites were found. They are all located on extensive raised beaches or terraces, along the shores of the lake. In all instances the

archaeological remains were found directly on the surface or just below a very shallow moss and humus cover. Three of the sites have yielded significant material. In each case it consists primarily of a very crude lithic assemblage containing large boulder spalls, flaking detritus and very few diagnostic artifacts. The bone preservation is excellent, and a number of good specimens of the bone technology were recovered. The faunal material seems to indicate a multi-seasonal occupation with possibly major emphasis on caribou and fish resources exploitation.

Located to the southeast of Sandy Lake, Jiggle Lake has yielded three prehistoric sites. The situation is more or less similar to that found earlier. The sites are all located on sandy or gravelly beaches or terraces, and they are very shallow. The yield consists primarily of vast quantities of fire-cracked rocks and very little in terms of artifactual material. Bone preservation is again very good and, in this particular case, the faunal remains of at least one site indicate intensive fishing activities.

Sunny Lake, located to the west of Sandy Lake, has yielded only two small prehistoric components which can be considered as part of the same site. They were both found on an elevated gravel spit located at the eastern end of the lake, just north of the outlet. The situation is similar to that found earlier, with the possible difference that some of the lithic material may appear to be slightly more sophisticated.

To sum up, we can say that all the sites found during this particular phase of the survey are characterized by similar environmental and cultural attributes. An effort was made to investigate other types of terrain features, such as higher terraces, but without success. The picture emerging from the material collected so far is suggestive of a single pattern of occupation which seems to be restricted in time to a late prehistoric period. On the basis of a portion of the bone material and the crude stone technology, these finds can be tentatively compared to assemblages such as that found in the upper level of the Whirl Lake site (Gordon and Savage 1973) and belonging to the Mackenzie Delta Kutchin. Some unusual raw material occurrences (quartzite) may also suggest a more southeasterly affiliation with some of the assemblages found by Clark (n.d.) in the Colville-Horton lakes area and thus be considered as possible participants in Noble's (1971) Talthilei Shale Tradition.

It is doubtful that this pattern represents the only cultural horizon to be found in this large lake region. More complete surveys along the shores of these lakes as well as of the inter-lakes crossings are likely to yield assemblages which would be representative of a much more complex cultural sequence and

interplay. Indeed, the northwestern portion of this area, especially south of the Caribou Lakes region, is located just below the forest-tundra ecotone, well within a potentially productive Eskimo-Indian interface situation.

In addition to ground survey, some time was spent doing aerial reconnaissance at a number of other lakes of this region as well as to the south of Travaillant Lake. In most instances, the observed surface disturbances can be attributed to recent aboriginal activities. No prehistoric sites were located.

6.2.3 *Sub-project 3: Bell and Porcupine Basins Survey*

This part of the project was undertaken by a crew of four under the direction of Paul F. Donahue (1973). Survey work lasted for a period of one month. The main purpose of this particular sub-project was to investigate carefully a number of areas (ridges and small basins) located away from the major river systems which had been surveyed previously. With the exception of a brief preliminary aerial reconnaissance of the area under investigation, most of the survey work was done by means of cross-country traverses.

Of the relatively large number of aboriginal activity areas found in the course of this reconnaissance, a total of eleven were considered important enough to be designated as archaeological sites. Despite the effort made in order to discover sites away from the major riverine areas, only three such sites were found. All the others were discovered along the banks of the Porcupine River. In all cases the artifactual yield was very low.

The three sites found inland from the river system consisted respectively of: a possible prehistoric component located near a series of high ridges between the Old Crow Flats and the Porcupine River; a stone cache found in the same general area which may be of prehistoric origin; and finally, a rather extensive historic winter camp area located in a small isolated basin to the southeast of the Old Crow Flats and the southwest of the Bell River drainage.

Most of the riverine sites have yielded little more than traces of hearths and some flaking detritus. One, however, seems to be a multi-component site. Probably it belongs to the transitional or early contact period, as it contains aboriginal as well as European goods.

As noted earlier, most of the areas covered by this phase of the survey have yielded a number of recent aboriginal campsites. The

nature of these remains as well as ethno-historical information obtained from the Old Crow crew members allows us to consider many of these sites as winter camps. If we assume a certain degree of continuity between a late prehistoric occupation pattern and the historic one, it becomes possible to suggest that late prehistoric or very early contact period sites of this type are present in these same areas. However, one should add that due to the scarcity of known winter camp remains as well as to their post-depositional history, it is doubtful that we will ever develop a method which would give us easy access to early remains of that sort.

6.2.4 *Sub-project 4: Porcupine River Drainage, Yukon Coastal Plain*

The larger part of the month of August was spent doing excavation, intensive testing and helicopter supported survey in the Porcupine River drainage and along portions of the Yukon Coastal Plain. The work was undertaken by the crews who had been involved in sub-projects 2 and 3, and with the addition of a new field-assistant from the Old Crow settlement.

The base-camp established at the Klo-kut site allowed easy and rapid access to the complex system of terraces found at the eastern confluence of the Old Crow and Porcupine Rivers. The work carried out in this particular area consisted primarily of renewed intensive testing of the Old Chief Creek terrace system and of foot and helicopter surveys of a number of localities found between the Porcupine River and the southern tip of Schaeffer Mountain. The intermittent work done at the Old Chief Creek site resulted in a much better assessment of the archaeological importance of this large sector of the middle Porcupine basin. It was discovered that the spatial and temporal extent of this deposit makes it in some ways comparable to that found nearby at Klo-kut. The importance of the site is now without question (see Appendices C and D).

The information recovered so far from various loci of the Old Chief Creek terrace and from neighboring bluffs or terraces is indicative of an occupation time span which is greater (although certainly less intensive and continuous) than the one evidenced in the Klo-kut Late Athapaskan sequence. It also suggests, at least for the later part of the possible sequence, a different seasonal pattern of occupation and exploitation. While the major portion of the Klo-kut occupation appears to be related to the spring caribou migration (Morlan 1973), that evidenced at the Old Chief site appears to relate also to a fall and winter mode of exploitation.

In other words, it is now clear that many aspects of the Old Chief site complement the picture which has emerged from the Klo-kut investigation. Furthermore, this increasingly diversified

cultural situation allows us to consider this entire sector as one of prime importance in terms of both pure research and salvage priorities (see Appendices C and D).

Helicopter support was useful in giving us rapid access to a number of terraces located to the east of what is called the Canyon of the Old Crow River. This short visit resulted in the discovery of two sites which, together with a number of other surface finds made along the Porcupine, are also useful in stressing the overall cultural importance of this area.

The helicopter survey intended to cover three major areas: portions of the Yukon Coastal Plain, parts of this segment of the Interior Mountain Route which is located to the west of the Old Crow River and various areas found on both sides of the middle Bell River drainage. Needless to say, a number of human and climatic factors prevented us from carrying out our investigation along a large portion of the Yukon Coastal Plain and along the western portion of the Interior Mountain Route.

The Yukon Coastal Plain attempt resulted in a short aerial reconnaissance along the western sector of the coast, especially between the Babbage River and the Malcolm River. Most of the sites which were found consist of tent-rings. They seem to occur as single units or in clusters of two or three. Two major types were recognized: rectangular and circular. In most cases, they were located on small well-drained terraces of relatively large braided streams. A possibly similar site was reported to be present near the Blow River (Lance Steigenberger, personal communication). According to the description, it is possible that the site also contains Eskimo semi-subterranean houses.

Another cluster of tent-rings has been located recently along the northern rim of the Old Crow Flats (E. de Bock - personal communication). An interesting aspect of this particular find is that it may represent a habitation site associated to a nearby caribou-fence (see p. 17).

There is no doubt that most of these finds relate to the Eskimo occupation along the Coastal Plain. The rectangular variety appears to be historic, and a circular form also yielded traces of historic material. However, it should be noted that similar finds made in Alaska (Cook 1971; Campbell 1962) are indicative of a relatively great antiquity. While it is true that the yield of these sites is frequently very low, it is nevertheless important to consider them as an integral part of an existing body of information which is needed to study the history and prehistory of the area. Their individual location and overall distribution can be only helpful in terms of our understanding of aboriginal exploitation patterns and seasonal cycle. As most of these finds appear

to be located along a potential pipeline route, it becomes evident that every effort should be made to investigate them thoroughly.

Another site which appears to be located in the near vicinity of a potential pipeline route is that of Engigstciak, on the right bank of the Firth River. This site which has been partly excavated more than fifteen years ago (MacNeish 1956) represents by far the most important prehistoric locality found along the Yukon Coastal Plain. It consists of an extensive cluster of prehistoric remains concentrated on a series of small terraces of the Firth, in an area where the river begins its course into the open plain.

This area, known for its importance in terms of caribou calving grounds, appears to have been intensively occupied by numerous prehistoric and historic groups. The evidence available suggests a long prehistoric-historic Eskimo continuum, as well as earlier, less well defined cultural manifestations. Suffice it to say that the location, extent and content of the site make it rather vulnerable to any type of large-scale industrial activity. Since the available archaeological information as well as last summer's surficial investigation indicate that the site remains to be studied fully, it is imperative that special measures be taken for its protection. Another site, discovered by a pilot, is apparently located on a raised beach at the mouth of the Firth River. The small collection contains recent Eskimo artifacts as well as other undatable bone objects.

The last portion of our helicopter survey was done along the southeastern Old Crow Flats ridges, through the Bell River drainage and along the Rat River (Y.T.), as far upstream as the pass across the divide in the Richardson Mountains. Three significant prehistoric sites were located.

The first one which was found on top of an isolated knoll overlooking the Old Crow Flats has yielded a small assemblage containing a lanceolate point fragment and some microblades. This is the first occurrence of such material in a non-riverine environment, along the southern portion of this large intermontane basin. Comparable finds have been made previously in more or less similar look-out sites along the northern fringe of the Old Crow Flats (Irving, personal communication). It is also possible that the find may be related to some of the material present in the Old Chief Creek site.

The bulk of the diagnostic artifacts recovered from most of these look-out sites consists of blades, microblades, microcores, side-notched points and transverse burins. The material can be compared

to assemblages found in Alaska and in the Yukon Territory. These industries are often referred to as belonging to the Northwest Microblade Tradition (MacNeish 1964), the Northern Archaic Tradition (Anderson 1968), Palisades or Tuktu complexes (Irving 1971; Campbell 1962), etc. Within the Porcupine drainage, these deposits appear to represent a mode of hunting pattern which may be different from the late Athapaskan riverine and lacustrine model (Irving - personal communication). An apparent gap which seems to be present between the former and the latter cultural manifestations will possibly be filled (partly) by a number of finds made along the Porcupine River terraces, in the vicinity of the Kloo-Kut and Old Chief sites.

The second site is located on a northwestern ridge of the small basin which has already been described as containing an extensive winter-camp occupation (see above, page 4). The small collection, including a side-notched point, is probably representative of a cultural manifestation comparable to those found in the above-mentioned look-out sites.

The third site was found on a high ridge located on the right bank of the headwaters of the Rat River. The area corresponds to a potential pipeline mountain crossing. The few hours spent there resulted in a small collection which may contain British Mountain cultural material (B. Gordon, personal communication). This surface site appears to be quite extensive. It is likely that other deposits will be present on similar ridges as well as on extensive lower terraces which are extant just below these high ridges. The material is unlike any of the finds made to this day within the Porcupine drainage.

It is important to mention another aerial reconnaissance which was made thanks to the kindness of E. de Bock of the Canadian Wildlife Service. In addition to providing us with a wealth of information on the Porcupine caribou herd, he has taken me to the sites of a number of caribou-corral (or fences), all located along the northern fringe of the Old Crow Flats.

These impressive aboriginal structures, which are found in association with numerous caches and other ground features, are interesting in many respects. Their origin and developmental history is unknown. They may have appeared in this area as the result of increased trading activities, but they may also have prehistoric antecedents which would have to be explained in terms of environmental adaptation, social organization, etc.

Although they are found well within the limits of the pipeline corridor area, it would seem at first glance that these sites fall outside of the pipeline corridor archaeological sphere of

interest. It is, however, clear that any attempt to understand the past history of the Porcupine caribou herd has to rely on this type of information. Furthermore, these structures, which may represent a local early historic climax of a much wider type of adaptation and exploitation, are nevertheless endangered by the recent increase in this area of various types of private collectors and souvenir hunters.

7. DISCUSSION AND CONCLUSION

7.1 *Introductory statement*

Before going into a discussion of some of the research and salvage problems which have been slowly emerging in the course of this exploratory project, it is necessary to mention a number of limiting factors.

From the start, the geographical dimensions of the Mackenzie Corridor precluded any attempt on our part to study it in its entirety. Nevertheless, it is felt that our pragmatic sampling procedure has provided us with a relatively good overall appreciation of the archaeological niceties and complexity of the study area.

A great deal of the numerous difficulties one may find in trying to cope with the archaeological situation of the Corridor area results from the lack of a reliable body of archaeological information as well as data from other fields of research dealing with traditional cultures or palaeo-environmental reconstruction.

Another major problem which will forever confront archaeologists working in this general area is that related to the nature of the environment itself. To put it simply, it is difficult to locate archaeological sites, and especially buried deposits, in the permanently frozen terrain of the boreal forest or along the soliflucting slopes of the tundra.

7.2 *Archaeological Sites and Salvage Problems*

7.2.1 *Archaeological Site Designation*

In trying to make any sort of statement concerning the archaeological potential of an area one has first to agree on what can be designated as an archaeological site. We have chosen here a minimal definition in that an archaeological site is equated with the physical location of a buried or surficial concentration, regardless of its size, of the material remains of past human occupation, whether they date to the early historic or the pre-historic period. In the area under consideration, it has been

customary to consider as ethno-archaeologically relevant any find which is likely to provide us with information concerning the traditional as well as the transitional aspects of aboriginal societies. This criterion refers to both aboriginal and Euro-Canadian remains.

However, it should be mentioned that for a number of reasons not all traces of past human activity found in the Corridor area are necessarily worthy of site designation. If we assume that one of our goals as prehistoric archaeologists is to clarify the complex pattern of human adaptation to boreal environments, it becomes necessary to avoid unwanted cluttering of our body of information. Choices must be made and sites designated as such on the basis of their research value and their problem-solving potential. Thus, for example, the material remains of early seismic camps or the sometimes extensive traces of recent aboriginal logging activities along the banks of a river or the shores of a lake are not to be included in a formal archaeological site list. It is true that the latter kinds of remains are potentially indicative of early historic or even prehistoric antecedents and that they can also be very useful in terms of our understanding of post-contact economic re-adaptations and of their continuity with the prehistoric record; recent aboriginal camps can even be used for experimental archaeology (Bonnichsen 1973). Only if these various localities occur as deposits suitable for excavation or collection will they be labelled as archaeological sites; otherwise, it is customary to consider them as an integral part of the body of ethno-historical information, to be used with care for the interpretation of our archaeological data.

7.2.2 *Comments on Some Sites Attributes*

Prehistoric sites in the Corridor area are most frequently characterized, in terms of their content, by various degrees of paucity. Very few of them exhibit the combined characteristics of sites such as Klo-kut (Morlan 1973) or Engigstciak (MacNeish 1956), i.e., extensive deposit, stratification, good bone preservation, relatively great time depth. The most common type of deposit found in the study area usually consists of the few lithic remains of what we assume were small hunting parties or family units; these sites may also contain residual hearth features and, depending on a number of bio-chemical and physical conditions occurring through time in the deposit, they may also yield organic remains (faunal material, birch bark trays, bone and antler artifacts).

Clustering of these individual campsites may occur when, for one reason or another (hunting, fishing, trading, etc.), these aboriginal units appear to have congregated in the same favored

places over the years, centuries or millennia, thus resulting in horizontally stratified deposits. Sites of this type seem to be relatively frequent in a number of sub-areas of the Corridor such as Fisherman Lake, the middle Porcupine look-outs and the Old Crow Flats look-outs. Over a very large period of time and given the right environmental conditions such a clustering may lead to a situation similar to that found, for example, along large portions of the Fisherman Lake valley where numerous clusters of individual campsites form an extensive regional complex or concentration. On the basis of accumulating evidence, it is possible to say that similar clustering patterns will occur relatively frequently, though possibly with less intensity, throughout the study area.

This particular distribution pattern may sometimes result in a true vertical stratigraphic situation, especially if through time the favored habitat has remained more or less continuously occupied and consistently delineated by a number of restrictive physical features such as poor surrounding drainage, valley walls, etc. This is especially true for sites such as Klo-kut, Rat Indian Creek, a good portion of Engigstciak and possibly a number of less well-known or reported deposits. Needless to say, the last criterion is equally valid in the case of a number of isolated single components or unstratified deposits.

It is obvious that not all archaeological sites can be included in the above-mentioned categories. For example, the majority of the known sites are representative of a spring to early fall pattern of occupation. With the exception of the Whirl Lake and the Old Chief housepits, for the interior, and a number of Eskimo houses, for the coastal plain, very few well-documented winter camps have actually been located. However, on the basis of ethnographical evidence, it is possible to assume that large numbers of winter campsites must have been established in areas such as marshes, bogs, etc., which would have been made accessible by the snow or ice cover, but where nobody, aboriginally or archaeologically oriented, would want to spend any length of time during the summer. As noted earlier (see p. 5), most of these sites are unretrievable within the framework of a normal archaeological survey.

Another type of less classifiable deposit is that consisting of disturbed material found out of its original context. In this case, its value as an archaeological site may depend on whether or not the object or objects can be traced back to their primary location or, sometimes, it may also be based on the actual importance of recurring finds as indicators of human activity in a given area. An example of this situation is that of the Old Crow basin Pleistocene-dated bone tools (Irving and Harington 1973) which have provided archaeologists with a totally new outlook on the early human occupation of the northeasternmost extension of the Beringian refugium.

Mixing of assemblages is another characteristic which is shared by a number of archaeological sites of the Corridor area. It occurs frequently in areally restricted sites which contain archaeological evidence of multiple though successive occupation on a single undisturbed surface. Similar component-blending may occur in vertically as well as horizontally stratified deposits, resulting from a number of physical causes such as flooding, soil creep, solifluction, cryoturbation, etc. Again, Engigstciak provides us with a clear illustration of this situation (Mackay, Mathews and MacNeish 1961) which may even end up in a total reversal of portions of a stratified deposit.

An increasing number of archaeological sites appear to be characterized by large size surface features such as housepit depressions, caribou fences, stone (tent) rings, stone or timber caches. While the semi-subterranean house structures have long been known from the Eskimo area of the Corridor, they have only recently begun to appear in the interior forested regions (see Appendix C). Similarly, the interior caribou fences located at the edge of the treeline have only recently attracted the archaeologist's attention; the better-known Eskimo inukshuk does not appear to be frequent along the coastal slope, although one may be present near Trout Lake, along the Babbage River.

Another attribute which has shown its usefulness for archaeological survey purposes in a number of forested areas of the Corridor is that related to culturally induced vegetational patterns such as well delineated grassy clearings and localized unusual vegetational succession. The Klo-kut, Rat Indian and Cadzow Lake sites, all located along the Porcupine River, exemplify this situation where early historic clearing activities (for camping and fuel procurement) of restricted areas along the riverbank can sometimes be taken as indicative of settlement pattern continuity with the early contact or late prehistoric periods. Vegetational oddities reflecting subsurface cultural disturbances such as high culturally induced organic content may also be encountered in the tundra environment.

7.2.3 *Aspects of Archaeological Survey*

This brief overview of some important site attributes allows us to discuss a few of the major problems we are faced with when trying to do a field inventory and evaluation of the archaeological resources along the relatively unexplored and environmentally complex Mackenzie Corridor. First, one has to be confronted with a basic internal contradiction in that in order to secure archaeological information (sites), one has first to be equipped with an appropriate understanding of past cultural ecology which

itself cannot be made available without information previously obtained from archaeological sites and from the field of ethno-history. This may explain some of the difficulties encountered in doing archaeological survey in the greater part of the Mackenzie Corridor.

In a few specific sub-areas such as the Eskimo coastal zone, the Fisherman Lake valley, the middle Porcupine River, the Old Crow Flats basin and possibly a small number of restricted areas of the Mackenzie valley, a better understanding of a few segments of prehistoric cultural ecology is beginning to emerge, thanks to the slow and sometimes erratic growth of ethno-historical, archaeological and palaeo-environmental knowledge; there, the initial learning experience is being replaced by a more critical research orientation.

In most other portions of the study area, however, archaeology is still at an exploratory stage and for that very reason, archaeological reconnaissances are frequently forced into a generalized pattern of investigation somewhat similar to that followed by MacNeish and others more than twenty years ago; the major differences with the latter being the increased mobility of today's field-crews and a higher frequency of terrain disturbances which can provide the archaeologists with freshly exposed palaeo-surfaces. It can be described as an attempt to maximize the archaeological survey returns through the investigation of all accessible topographical features or combinations of features which are considered potential site locations.

The selection of features to be tested is frequently based on the following minimal criteria:

- 1) analogies with known traditional occupation and exploitation patterns;
- 2) expected in situ continuity of an available recent historic site with its historic antecedent;
- 3) similarities of any given set of features with archaeological situations found somewhere else;
- 4) environmental and/or palaeo-environmental reconstructions or expectations;
- 5) presence of already known sites in the near vicinity of the selected feature.

In other words, most archaeological remains, if they are present at all, are likely to be located in seasonally suitable habitats within easy access of, or in areas leading to, economically important resources such as food, fuel, raw material, trading centers, etc. Given a minimal amount of background information and taking into account some of the already-mentioned limiting factors, one has to consider as potentially productive many of the possible combinations of features such as lacustrine regions, stream confluence, terraces, beaches, ridges, etc.

7.2.4 *Some Aspects of Historical Archaeology*

When comparing the fields of prehistoric and historic archaeology in the Corridor area, one realizes that while the former suffers from a number of obvious deficiencies, the latter is almost non-existent. This is especially true in terms of actual field research. To our knowledge, most if not all of the historic sites of the study area which were ever tested or excavated were done so by practitioners of prehistoric archaeology.

This particular interest of prehistorians for historic sites stems mainly from their need to obtain satisfactory ethno-archaeological information which, as we have already emphasized, is particularly relevant to the study of prehistoric groups. Furthermore, the study of contact and transitional sites can provide archaeologists with a better grasp of the complex mechanics of rapid cultural and economic changes. Finally and thanks to the nature of their numerous and extensive surveys, prehistoric archaeologists have frequent access to historic localities, which does not appear to be the case for historic archaeologists.

This dichotomy between prehistoric and historic archaeologists may be somewhat fallacious, especially in terms of the Mackenzie Corridor early historic sites. When taking into account the fact that the full Euro-Canadian impact was felt more or less rapidly, in a time transgressive fashion, one realizes that few if any of the early historic sites are fully Euro-Canadian. There are those aboriginal sites which represent possibly the first signs of an indirect foreign influence, those which show definite evidence of a rapidly changing aboriginal economic adaptation and finally those which correspond to early Euro-Canadian trading posts or forts. The initial *raison d'être* of the latter being essentially economic (fur trade), they were usually located in areas suitable for trade and depended for their survival on the various local groups they could attract. Their remains show clear evidence of this symbiotic relationship which, if it is to be fully characterized and understood, needs to be studied by workers from both prehistoric and historic archaeology.

While sharing many interests in common, prehistoric and historic archaeology differ in terms of survey needs. In the case of the latter, the very history of Euro-Canadian penetration in the Corridor area can be taken as relatively well-recorded. Numerous written documents mention most of the early historic outposts and their approximate if not exact location is usually known. It follows that in the case of historic archaeology much of the initial reconnaissance work can be reduced to a minimum, with the major efforts being directed toward intensive regional survey and actual excavation.

7.2.5 *Comments on Archaeological Evaluation*

First, it should be made clear that our intention here is not to evaluate all of the individual sites found to this day in the Corridor area. Only when confronted with an actual salvage situation and given all the necessary pipeline route and construction details will such a rating be needed.

As it is taken for granted that all archaeological sites are equally important because they all represent various facets of prehistoric human manifestations, it is necessary to stress that any type of rating of sites does not imply that some of them can be classified as expendable. It is only to be considered as an assessment of the degree to which any given archaeological deposit found within the limits of pipeline construction activities would be endangered as well as the kind of salvage these sites would require.

For example, a number of extensive archaeological deposits such as Engigstciak, Klo-kut, Old Chief, Rat Indian Creek, Kittigazuit and Kopuk would require total protection from construction activities mainly because their size, the fact that they are stratified and their overall cultural importance and complexity would preclude any possibility of rapid salvage excavation. The other types of sites (see p. 19) which form the majority of those found so far in the Corridor area would require either various degrees of salvage excavation or simple surface collection and/or recording.

An even more futile exercise would consist of an attempt at listing all the individual topographical and physiographical units which could be expected to yield archaeological material. In addition to being essentially an act of faith directed toward prehistoric man's willingness to serve the needs of the archaeologist, such a listing would tell us little about the actual archaeological content of the Corridor area. Furthermore, the value of this attempt would be directly proportional to that of the techniques used for

identifying and evaluating potential sites. Air photo analysis, for example, can help us in terms of terrain evaluation and, given the appropriate scale and right type of ground cover (Harp 1968), can even allow us to identify large scale ground features such as caribou fences, housepits and tent-rings. It does not however tell us if a given sandspit or look-out will yield stone artifacts. Only field-work can solve this particular problem. Suffice it to say that whenever there will be correspondence between pipeline construction activity areas and the features mentioned (p. 23), more survey care will be needed.

Finally, we believe that any attempt at an evaluation of the archaeological potential of the study area, and ultimately, of the actual pipeline route, will have to be based on the various research possibilities and complexities offered by any given sub-areas of the Corridor. As in the case of individual sites, this only means that a number of regions may require more complex salvage procedure than others. Indeed, as a result of our general survey, it is possible to state that all the sub-areas have yielded various quantities of archaeological material which can be integrated in a number of research avenues. Some of these regions may appear to be more important than others in terms of their problem load, but this is partly due to the fact that they have been more thoroughly investigated.

On the basis of some of these apparent or emerging general research possibilities, the Corridor can be divided into the following areas:

- 1) Porcupine River Basin - For the moment, it can be considered as the most sensitive area, mainly because of its Pleistocene-dated finds, its emerging cultural continuum which appears to have lasted throughout the Holocene and its environmental complexity in terms of faunal resources and variability of human habitat. Particularly important are the Old Crow - Porcupine confluence region which has yielded evidence for possibly continuous human occupation for at least the last 4,000 to 5,000 years and the northern rim of the Old Crow Flats which has also yielded traces of man's activity ranging possibly from the early Holocene to the historic period. A number of other recent finds suggest that portions of this large region have been occupied or visited, at one time or another, by groups having affinities with early coastal and Cordilleran cultural manifestations.
- 2) Yukon Coastal Plain - Its westernmost sector which contains the Engigstciak site cluster is possibly as important as the former in terms of expected time depth and complexity of

cultural manifestations. The Firth River sequence (MacNeish 1956) as well as the material collected by Gordon (1970) in the Babbage River area suggest a long proto and recent Eskimo sequence which if investigated would allow us to fill a major gap concerning our understanding of the developmental relationships between the Alaskan and the more easterly Canadian Eskimo groups. Finally, the foothills and Cordilleran section of this area have yielded relatively early assemblages such as those labelled British Mountains which at this time remain to be fully explained.

- 3) Mackenzie Delta and Border Area - In addition to the lower Delta Eskimo occupation which has been only barely investigated, the area is important in terms of our understanding of the late prehistoric Delta interior Eskimo-Indian interface as well as of the relationships between late prehistoric Kutchin and non-Kutchin groups. Much earlier material appears to be limited to that found at the Whirl Lake site, but it nevertheless poses problems concerning the spread of microblade technologies within the Mackenzie valley.
- 4) Middle and Upper Mackenzie River - This very extensive area can probably be divided into two major regions located to the north and south of the Great Bear River. Although little archaeological work has been carried out in the first area, it appears to have recently yielded firm evidence of a form of palaeo-Eskimo (Arctic Small Tool manifestation (Chambers 1974) which had already been suggested by a number of artifacts found in MacNeish's (1955) Great Bear River assemblage. Most of the sites located to the south of Great Bear River have yielded assemblages which are usually evaluated with reference to parts of the Fisherman Lake sequence (Millar 1968). An important element is that which is apparently related to a late northern Plains type of manifestation, as far north as the Great Bear River region. Both regions have also yielded evidence of cultural affinities with a number of complexes identified by Noble (1971) in the Great Slave Lake region. The entire middle and upper Mackenzie area also participates in an extensive and apparently long-lasting prehistoric trade network which is believed to extend as far east as the Great Slave Lake area and as far west as the Yukon Territory (Cinq-Mars 1973). Finally, this entire sector of the Mackenzie valley is considered to be of utmost importance for the study of both the earliest (assumed early man migration corridor) and the latest (Euro-Canadian) cultural arrivals in this vast portion of the North American continent.

8. COMMENTS AND RECOMMENDATIONS

8.1 *Revisions and Corrections (Cinq-Mars 1973: 54-60)*

8.1.1 Recommendation 9.2.3 - *Archaeological Salvage Operation: Preliminary Evaluation* should read: It is recommended that all of the pertinent archaeological information gathered during the preliminary survey phase be used to affix a priority rating indicative of scientific value to all of the known archaeological sites or site clusters located within the pipeline corridor. Actual salvage....

8.1.2 Recommendation 9.2.5 - *Archaeological Salvage Operation: Total Salvage* should read: ...appropriate measures should be taken to protect it permanently against construction activities (by realigning the right-of-way, etc.).

The rationale behind this particular recommendation is that a number of sites cannot, because of their spatial and/or temporal extent, be properly excavated within the framework of a salvage operation. At this time the known sites which would fall into this category are: Engigstciak, Klo-kut, Old Chief, Rat Indian, Kittigazuit, Kopuk, and those historical forts which have been located thusfar. It should be added that the probability of finding many sites of this type in the actual pipeline corridor is considered to be low.

8.1.3 Recommendation 9.2.6 - *Archaeological Salvage Operation: Construction Monitoring*. The following should be added to the last sentence: ... and for the measures to be taken if there is a need for salvage.

8.2 *New Recommendations*

8.2.1 *Inter-Agency Coordination*

It is recommended that discussions be initiated between the National Museum of Man and the agency responsible for pipeline construction in order to define as soon as possible the operational measures which will be required to implement a full-scale salvage program. This should be done well in advance of actual pipeline construction and in conjunction with the various researchers who will actually carry out the salvage program.

8.2.2 *Historical Archaeology*

It is recommended that discussions be initiated between the National Museum of Man and the agency (or agencies) responsible for historical archaeology in order to define the guidelines which will be required for efficient coordination between historic and prehistoric archaeological salvage operations.

Measures should be taken in order to avoid duplication of survey and excavation efforts. In the case of historical site survey, there does not seem to be a need similar in importance to that of prehistoric archaeology. As the approximate location of most of the important historic sites is already known and as some such sites have already been precisely located, it is felt that the major historic archaeology efforts should be directed toward localized survey and salvage operations.

Furthermore, it is recommended that, due to the particular nature and content of most historic sites found in the Corridor area (transitional and contact situations), all historic salvage work should be undertaken in close collaboration with students of prehistoric archaeology.

8.2.3 *Research Areas*

It is recommended that for the purpose and duration of the entire salvage operation, the Corridor area be divided into a number of regions or segments which would correspond to archaeologically defined research problems. Each of these areas would be under the supervision of a researcher who would be expected to have experience in the particular problems of his own area.

Thus, salvage work in any given segment of the Corridor would necessarily result in more scientifically oriented undertakings which, in turn, would be more easily incorporated into a broader (salvage and post-salvage) research perspective.

Areas which are likely to provide us with a good deal of well established (or emerging) avenues of archaeological research can be listed as follows (see p. 25):

- 1) Yukon Coastal Plain (from the Alaskan border to the northern tip of the Richardson Mountains);
- 2) Porcupine drainage (from the Alaskan border to the Richardson Mountains divide);
- 3) Mackenzie Delta and border areas;
- 4) Lower Mackenzie River (from the region south of Travaillant Lake to Great Bear River);
- 5) Middle-Upper Mackenzie River (from Great Bear River to the 60th parallel).

8.2.4 *Site Attributes for Salvage Priority*

It is recommended that the following attributes be used to determine individual site salvage needs:

- 1) great lateral extent;
- 2) complex horizontal and/or vertical stratigraphy;
- 3) presence of large and complex ground-features;
- 4) indications of very great antiquity of the remains;
- 5) good organic preservation.

Any given site found to be characterized by more than one of these attributes would require total protection from any type of construction activity (see recommendation 9.2.5, Cinq-Mars 1973: 57). In the event that such a site is discovered only after construction, it is recommended that every effort should be made to salvage its remnants.

It is likely that most other sites will be characterized by only one of these attributes or by a much less extreme combination of many of them. In such cases, the salvage procedure, which will consist of careful excavation, surface collection or recording, will have to be determined in the field on the basis of individual site requirements.

8.2.5 *Miscellaneous*

It is recommended that measures be taken to initiate a small-scale archaeological information and display program which would benefit the living population of the Mackenzie Corridor. Ideally, this would be done concurrently with the salvage operation.

8.2.6 *Need for Further Study*

It is recommended that an intensive helicopter reconnaissance be made of a number of areas which have yet to be evaluated in the field. Most of these areas are located in the northern or north-western portion of the Corridor: eastern portion of the Yukon Coastal Plain, southwestern Old Crow Basin, Richardson Mountains. The survey could be carried out within a period of one month by two small crews.

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Montreal.
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Fig. 1. Major areas (cross-hatched) investigated during the 1973 field season.

Appendix A

A PARTIALLY ANNOTATED PALEOENVIRONMENTAL BIBLIOGRAPHY
WITH SPECIAL REFERENCE TO THE MACKENZIE PIPELINE CORRIDOR

Paul F. Donahue

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- 1895 On a great pre-glacial river in northern Canada. *Scottish Geographical Magazine*, Vol. 11, p. 368.

Benninghoff, W.S.

- 1952 Interaction of vegetation and soil frost phenomena. *Arctic*, Vol. 5, no. 1, pp. 34-44. Montreal.

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Bird, C.D.

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Bird, J.B.

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Blanchet, G.H.

- 1926 Great Slave Lake area, Northwest Territories. Northwest Territories and Yukon Branch, Canadian Department of Interior. Ottawa.

Borns, H. and R.P. Goldthwait

- 1966 Late-Pleistocene fluctuations of Kaskawulsh Glacier, southwestern Yukon Territory, Canada. *American Journal of Science*, Vol. 264, no. 8, pp. 600-619.

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Bostock, H.S.

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- 1965 Notes on glaciation in central Yukon Territory. *Paper of the Geological Survey of Canada*, No. 65-36. Ottawa.
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Britton, M.E.

- 1967 Vegetation of the Arctic tundra. IN: *Arctic Biology*, edited by H.P. Hansen. Oregon State University Press, Corvallis.
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Brown, R.J.E.

- 1965 Distribution of permafrost in the discontinuous zone of western Canada. *Memoir of the National Research Council*, No. 86, pp. 1-14. Ottawa.
Discontinuous zone is bordered by Great Slave and Great Bear lakes and Yukon Territory. Author emphasizes effect of climate on its formation.
- 1966 Relation between mean annual air and ground temperatures in the permafrost region of Canada. *Proceedings of the International Conference on Permafrost, 1963*, pp. 241-247. Washington.
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- 1967 Comparison of permafrost conditions in Canada and the USSR. *Polar Record*, Vol. 13, no. 87, pp. 741-751.
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- 1970 Occurrence of permafrost on Canadian peatlands. *Proceedings of the 3rd International Peat Congress*, Quebec.

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Bryson, R.A. and W.M. Wendland

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An argument and supportive data are offered suggesting that climatic patterns and biotic information can be matched for the past 10,000 years. Climatic episodes are defined and described.

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- 1968 *Flora of Alaska and neighbouring territories: a manual of the vascular plants.* Stanford University Press, Stanford.

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Keele, J.

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- 1918 Notes on sedimentation in the Mackenzie River Basin. *Journal of Geology*, Vol. 26, pp. 341-360.

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Summer and winter surface temperatures in the northern hemisphere at various times during the last glaciation as evidenced by geological, botanical, oceanographic, etc., data are used to derive the general atmospheric flow pattern. Probable surface pressure distributions are then extrapolated for each period studied.

Lambert, J.

- 1968 The ecology and successional trends of tundra plant communities in the low Arctic subalpine/foothill zone of the Richardson Mountains and British Mountains of the Canadian western Arctic. *Abstracts of the 19th Alaskan Science Congress.*

Study of this zone indicates that vegetation distribution varies with soil, topography, snow cover, and other environmental factors. Main emphasis is soils and author suggests an eco-system classification system.

Lichti-Federovich, S.

- 1973 Palynology of six sections of Late Quaternary sediments from the Old Crow River, Yukon Territory. *Canadian Journal of Botany*, Vol. 51, no. 3, pp. 553-564. Ottawa.

Lichti-Federovich, S. and J. Ritchie

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Overview of the geography and geology.

Lowther, G.

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Lutz, H.

- 1953 The effects of forest fires on the vegetation of interior Alaska. *Paper of the Alaska Forest Research Station*, no. 1.

Mackay, J.

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Reviews factors involved in the erosion of the coastline.

- 1963 The Mackenzie Delta area, N.W.T. *Geographical Bulletin*, Memoir no. 8.

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Martin, L.

- 1959 Stratigraphy and depositional tectonics of North Yukon, Lower Mackenzie area, Canada. *Bulletin of the American Association of Petroleum Geologists*, Vol. 43, no. 10, pp. 2399-2455.

Matthews, J.

- n.d. Insects and plant macrofossils from two Quaternary exposures in the Old Crow - Porcupine region, Yukon Territory (Canada). Ms. 27 p.

Reports on two exposures (32,400 and 44,000 B.P.) containing insect and plant remains deposited in a forest-tundra environment. One assemblage indicates that the Old Crow basin was probably treeless; the other, from Old Crow basin suggests climatic conditions similar to the present.

McCloy, J.

- 1969 Morphological characteristics of the Blow River delta, Yukon Territory. Ph.D. thesis, Louisiana State University and Agric. and Mech. College. 176 p.

Selected characteristics of the Blow River delta are compared with other deltas using the available literature.

McConnell, R.

- 1891 Report on an exploration in the Yukon and Mackenzie basins. *Annual Report of the Geological Survey of Canada*, No. 4, pp. 5D-163D. Ottawa.

Mitchell, J.

- 1966 Stochastic models of air-sea interaction and climatic fluctuation. *Symposium on the Arctic heat budget and atmospheric circulation*, pp. 45-74.

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Ogilvie, W.

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Porsild, A.

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Porter, S.

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Porter, S. and G. Denton

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Reeves, B.

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An evaluation of the available data and a statement that the Laurentide and Cordilleran Ice sheets may, in the last 10,000 years, only have coalesced in a few isolated areas and then for geologically short periods of time. Consequently, they are not thought to have been an impenetrable barrier to man.

Richards, H.

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Ricker, K.

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Appendix B

MACKENZIE RIVER: FORT SIMPSON TO FORT GOOD HOPE

Timothy C. Losey
University of Alberta
Edmonton

Introduction

The Mackenzie Pipeline Archaeological Project (M.P.A.P.) was initiated on 15 June 1973 and continued through 23 August 1973. During this period, archaeological reconnaissance was conducted along the eastern margins of the Mackenzie River valley from Fort Simpson (Mile 200) to Fort Good Hope (Mile 682). This phase of the project involved 482 miles of river travel. This portion of the project was referred to as the River Survey Phase which involved a field party of seven individuals.

An additional 21-day survey was conducted later in the season, from 25 September through 16 October 1973, which is referred to as the Lake Survey Phase. This phase of the project was conducted exclusively by air charter and involved a field party of two individuals. It was designed to allow survey work among some of the larger lakes inaccessible to the river survey party.

This abridged version of the M.P.A.P. Field Activities Report briefly describes reconnaissance, testing, and archaeological discoveries for each of the two previously described survey phases. Activities of the River Survey Phase appear under the following seven sub-headings: (1) Willowlake River Area; (2) River Between Two Mountains Area; (3) Roche qui Trempe-à-l'Eau/Mount Gaudet Area; (4) Blackwater River Area; (5) Fort Norman/Great Bear River Area; (6) Sans Sault Rapids Area; and (7) Fort Good Hope Area (Fig. B-1).

The Lake Survey Phase involved reconnaissance of lakes in the Fort Good Hope, Norman Wells, and Wrigley regions of Northwest Territories. Activities for this phase are discussed under the sub-headings: (1) Rorey Lake; (2) Loon Lake; (3) Turton Lake; (4) Kelly Lake; and (5) Fish Lake.

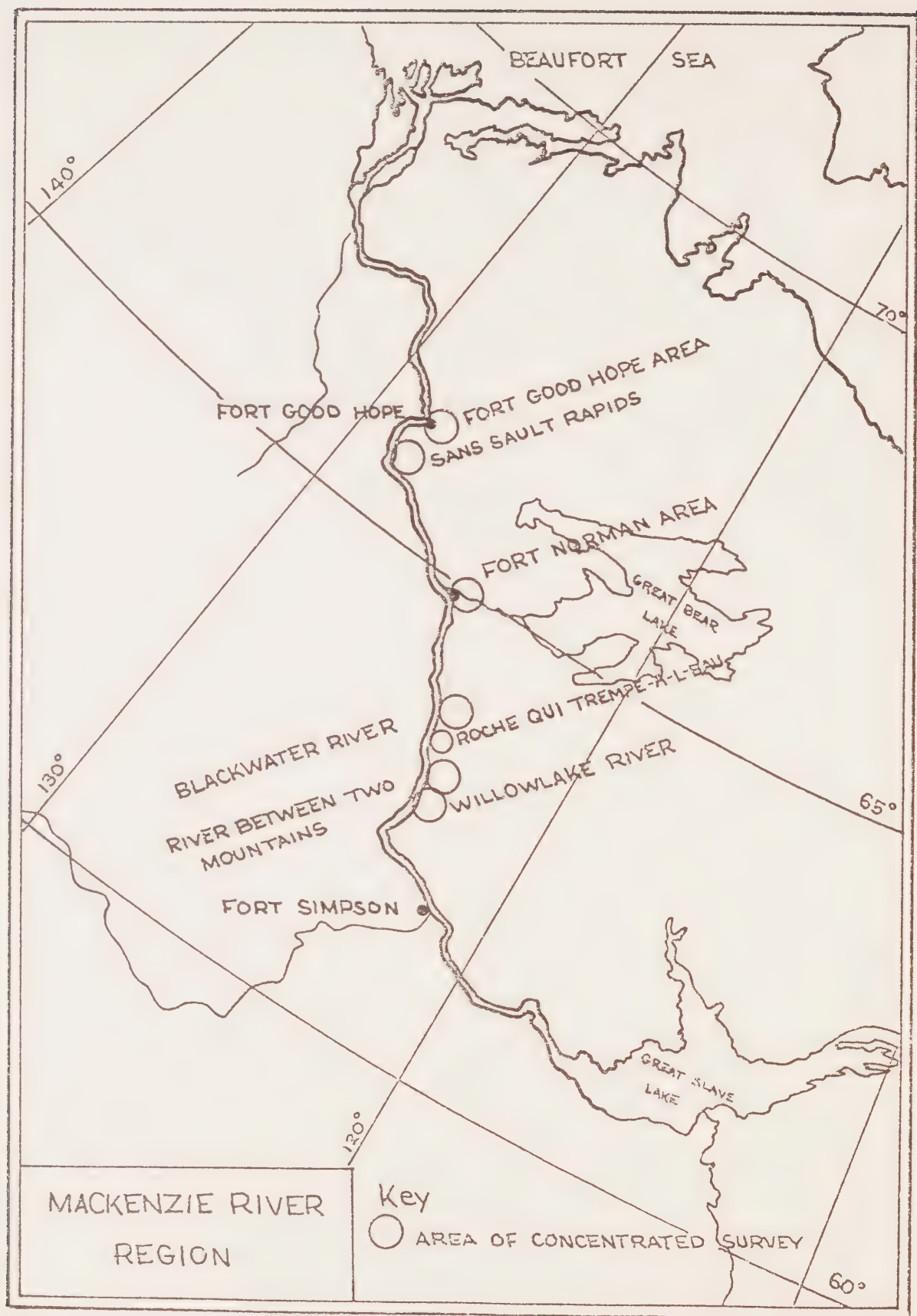


Fig. B1.

Survey activities are described with reference to the name of the lake investigated.

A special Historic Sites section is included which describes the location and remains of 19th century fur trade sites of the upper and middle Mackenzie River regions. While not directly related to the survey of the Mackenzie development corridor, casual effort was made to relocate a few of the important remains not yet registered as archaeological sites.

Details of site location, stratigraphy, excavation, and artifact inventories are included at the end of each major section.

Acknowledgements.

Gratitude is expressed to each of the M.P.A.P. Field Assistants for their interest and perseverance, and especially to Field Supervisors R.R. Janes and P.E. Reid. Special thanks are due the residents, Settlement Managers, and merchants of Fort Simpson, Wrigley, Fort Norman, and Fort Good Hope. The logistic assistance tendered by Nahanni Air Limited, Arctic Air Limited, and F.F. Slaney and Company is very much appreciated.

Assistance in the preparation of the Historic Sites section of this report from Mr. R.R. Janes is gratefully acknowledged. The opportunity to conduct the Mackenzie Valley research is owed primarily to Mr. Jacques Cinq-Mars, Project Director, Archaeological Survey of Canada, National Museum of Man.

The River Survey Phase

Willowlake River Area

Willowlake River constitutes a major tributary of the Mackenzie River system penetrating over 200 miles eastward and draining the northern portion of Great Slave Plain and the Horn Plateau. The confluence of Willowlake River with the Mackenzie lies 115 miles north of Fort Simpson, N.W.T. at $62^{\circ}42'N$ X $123^{\circ}07'W$. A few miles north of the river mouth the McConnell Range of the Franklin Mountains rises to just over 2000 feet A.S.L. forming the commencement of this front-range complex east of Mackenzie River (Fig. B-2).

A contemporary Slave Indian settlement is located on the north bank of Willowlake River at the confluence. Formerly, a small North West Company trading post which operated from 1817 to 1821 was located 1.5 miles upstream from the settlement (Gordon 1973). It is precisely at this point that the new Mackenzie Highway extension, now under construction, will cross Willowlake River. The area immediately surrounding the former trading post, Fort Alexander, is clearly delineated by an encroachment of aspen poplar which has replaced the spruce trees removed for fuel and building material.

A field base camp was established 2.5 miles upstream from the mouth of Willowlake River on the north bank of a wide meander of the river. Since historic site Fort Alexander was already being excavated by a separate project, archaeological survey was carried out from there to a point 11 miles upstream along both banks of the river. This was the maximum distance that could be penetrated as navigation was hampered by exceedingly low water levels; such situations caused problems throughout the field season.

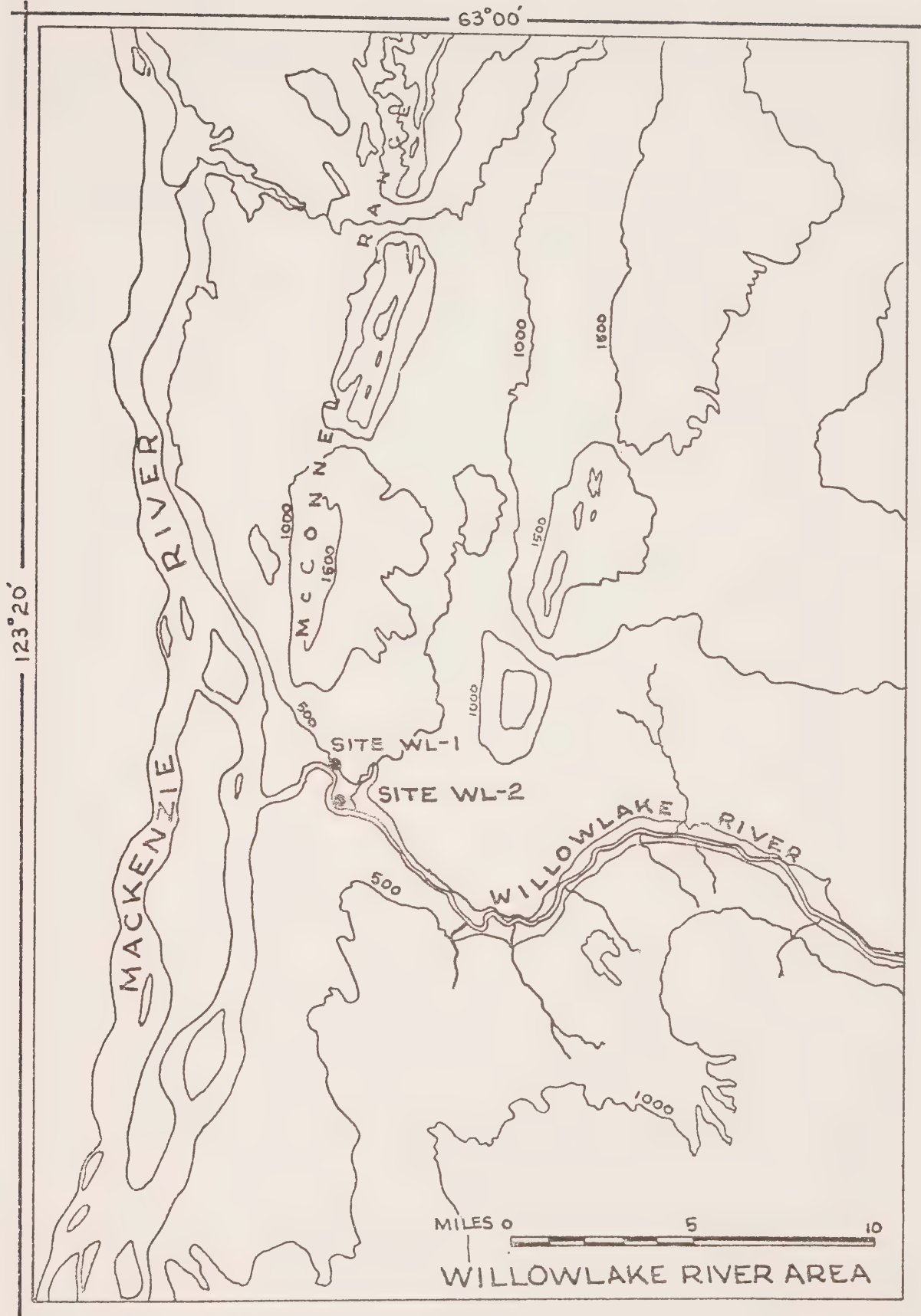


Fig. B2.

Following initial reconnaissance, a total of 17 locales were examined and tested over a period of four days. Stream confluences, river terraces, and upland areas were ultimately given priority regarding more detailed examination. Advantage was also taken of natural stratigraphic exposures due to erosion. A long section of glacio-fluvial sands extending over 50 feet above the river, 3.5 miles upstream from the mouth, was carefully examined for archaeological material, but no remains were encountered.

During the course of site survey, four relatively recent Athabaskan bush camps were encountered all of which are located on the north bank of the Willowlake River. Three of these were superficially noted while the fourth was recorded in some detail. Photographic documentation was employed to supplement field observations regarding this fourth, rather elaborate bush camp. Associated with this site is a single burial enclosed by means of a rude picket fence.

Only one buried cultural component was located as a result of exploratory excavation. The component, designated WL-2, is located on the north bank of a major bend in the river, three miles from the mouth. The material (Fig. B-3), consisting of a small scatter of fire-cracked rock, two caribou(?) tibia fragments, a beaver phalange, and a Dominion Cartridge Company .30-.30 cal. shell case, was recovered from the upper 13 cm. of the A-h horizon between 7-10 cm. from the surface. A test excavation measuring 75 cm. X 100 cm. was dug to a depth of 40 cm. without recovering any further material. The stratigraphic profile exposed in this test unit was recorded (Fig. B-4) and is presented with other details below.

Approximately 2.5 miles upstream from the mouth of Willowlake River, on the north bank of the stream, a stratum of white volcanic ash was observed which is tentatively identified as the White River volcanic ash dated *ca.*

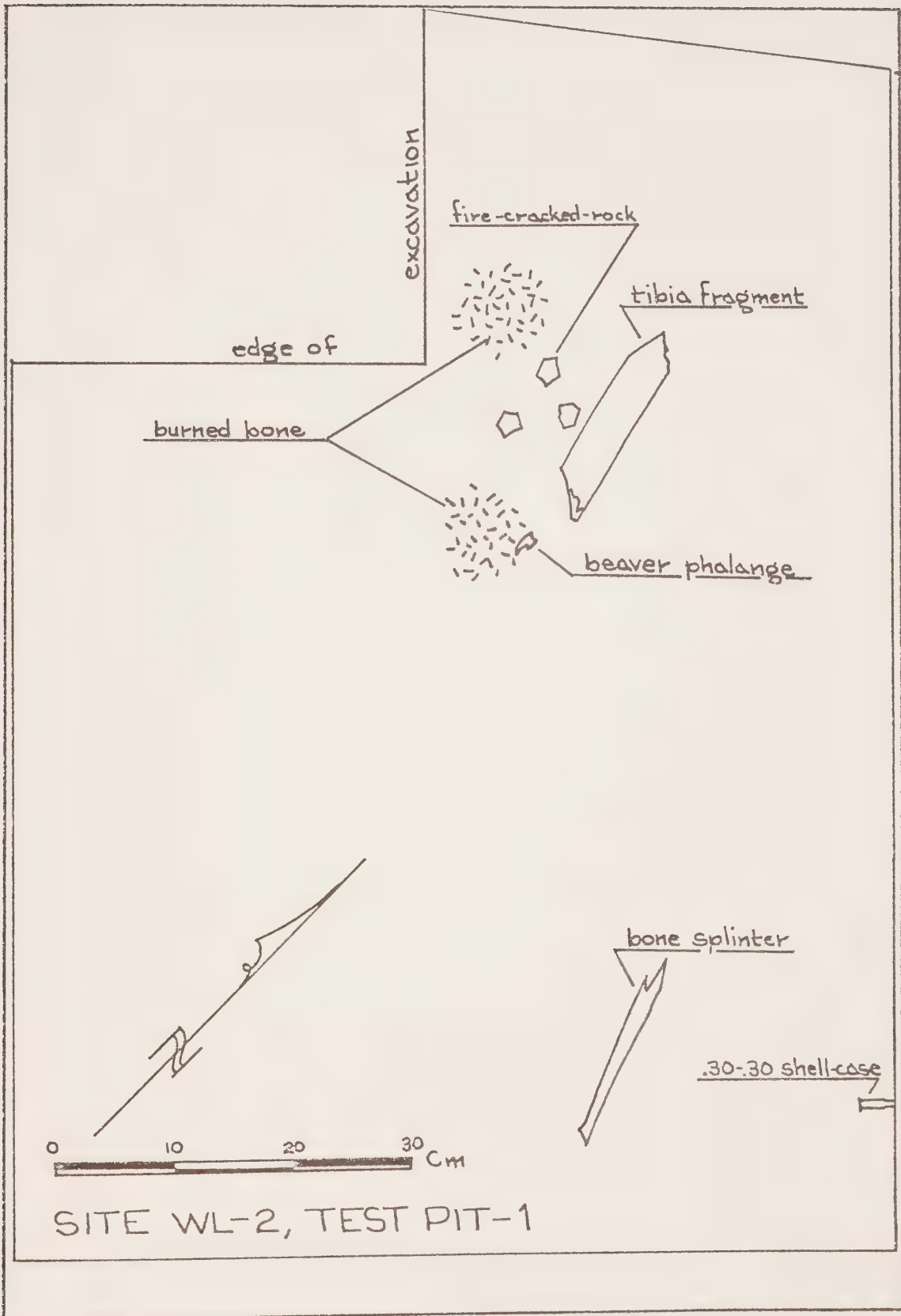


Fig. B3.

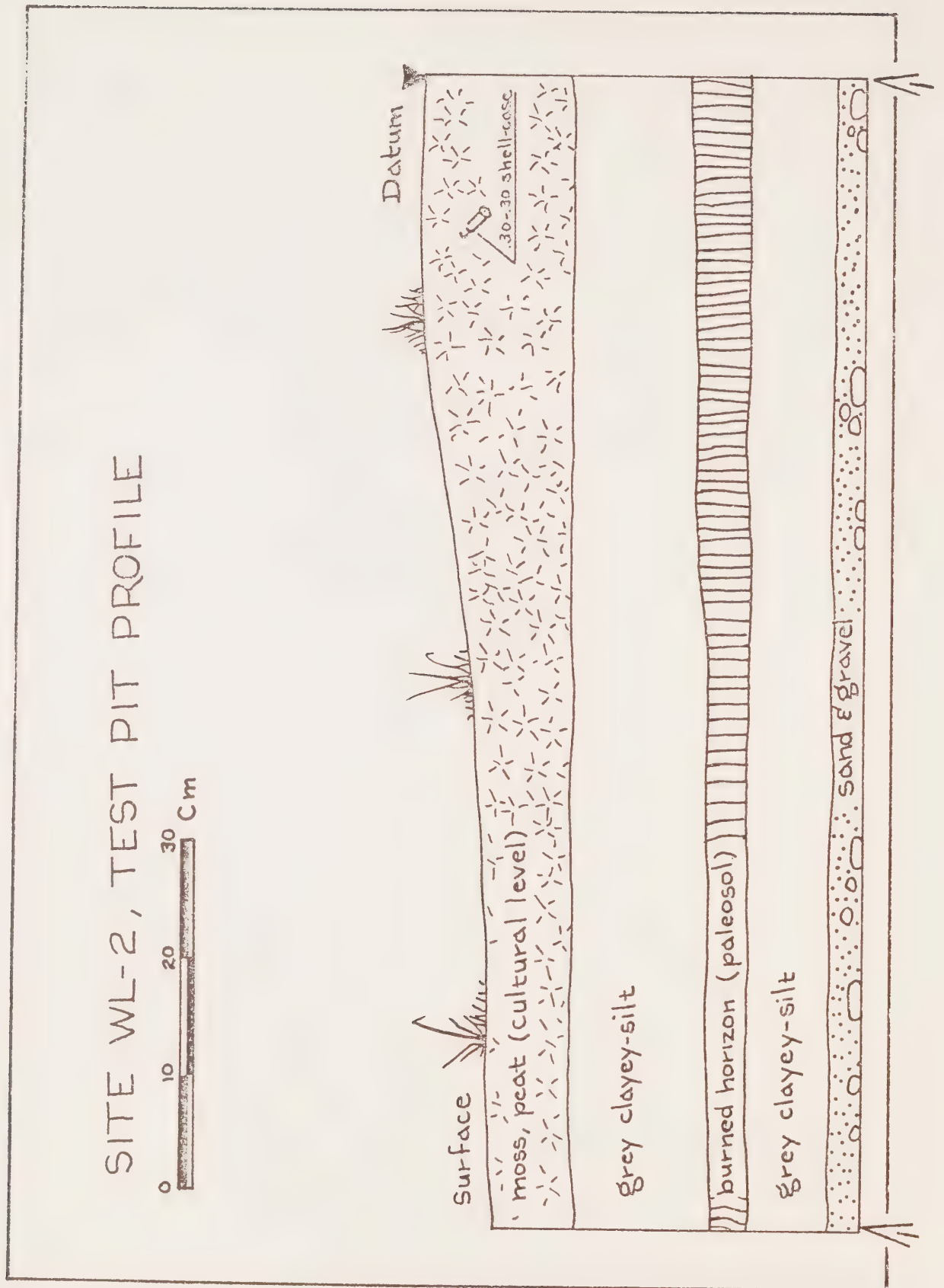


Fig. B4.

1500 B.P. (Lerbekmo and Campbell 1969). The stratum is situated some 60 cm. below surface in an alluvial section presently being eroded by the meandering river channel. Directly below the ash level is an intermittent stratum of orange silt containing bits of charred wood and charcoal remains. The deposit is interpreted as a forest burn horizon indicating that a significant forest cover did exist in the local area immediately prior to A.D. 500, the approximate date of the White River eruption. The volcanic ash was also observed in similar stratigraphic position along the east face of a large alluvial island four miles upstream from the confluence.

SITE: WL-1

LOCATION: Willowlake River 62°41'20"N. X 123°03'00"W.

ASSEMBLAGE:

Surface

An Athabaskan "Bush" camp consisting of a single tent site with elaborate stove platform constructed on small diameter spruce poles and two short stove supports made of four inch diameter logs. Other features include tent poles and pegs, make-shift saw horses and wood-chopping areas, a dog shelter, a conical brush shelter, and associated burial site surrounded by a rude picket fence of small sticks.

SITE: WL-2

LOCATION: Willowlake River 62°41'15"N. X 123°03'00"W.

ASSEMBLAGE:

Test Pit #1

Artifacts

1. Cartridge case, brass, Dominion Cartridge Company, .30-.30 cal.

Faunal Remains

1. Tibia, right medial shaft fragment
2. Phalange (*Castor canadensis*)
3. Bone splinter (unidentified) large mammal

River Between Two Mountains Area

River Between Two Mountains has as its major source the 18 mile long Fish Lake, located some 27 miles east-southeast of Wrigley, N.W.T. The southwesterly flowing river breaches the 2000-foot McConnell Range of the Franklin Mountains 6.5 miles east of Mackenzie River and joins the latter 133 river miles north of Fort Simpson (Mile 333) at $62^{\circ}56'N$. X $123^{\circ}13'W$. The river is deeply entrenched for over half its course between Fish Lake and Mackenzie River. Older terrace deposits are consequently rare in occurrence and are best defined near the confluence. The river is shallow and rocky for most of its length being navigable perhaps only in spring when at or near its flood level.

One mile north of the mouth of River Between Two Mountains and on the east bank of Mackenzie River is a small Slave Indian settlement. According to Usher (1971), two independent traders operated posts located approximately seven miles upstream on the Mackenzie from 1937-1963. Immediately south of the river confluence was observed the remains of a 20-foot square cabin for which there is apparently no record. Presently, a Department of Public Works highway construction camp and a Hire North training camp are located a short distance from the south bank of the river mouth.

Three areas within the area of concentration were examined in detail and tested (Fig. B-5). These are: (1) the river mouth along both banks and terraces; (2) two unnamed lakes five miles inland north of the river; and (3) the River Between Two Mountains pass, 6.5 miles inland from Mackenzie River. The activities concerning the three areas will be discussed in the order presented above.

1. Both the north and south banks of the mouth of River Between Two Mountains have been subjected to recent disturbances. On the north bank,

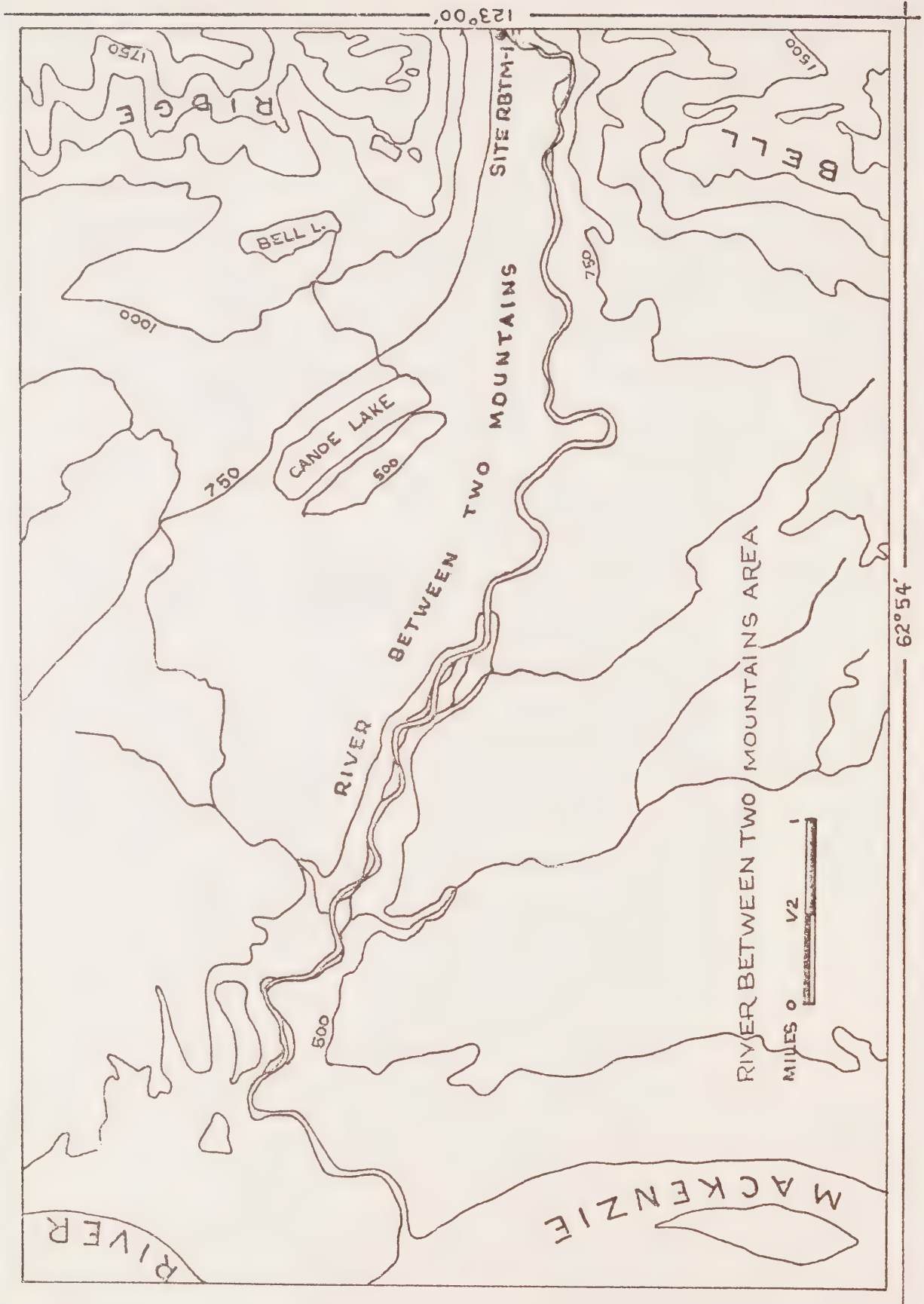


Fig. B5.

much bulldozer activity in connection with the construction of a dirt airstrip has deranged the local geomorphology but also presented surface exposures that would not be available otherwise. A few stone flakes were reportedly found on the airstrip near the edge of the riverbank (Derry, personal communication). However, severe ice-jamming and active erosion combine to make this locale an unlikely one regarding site preservation.

A very well preserved alluvial terrace sequence is extant on the south bank approximately 100 yards from the Mackenzie River. Two terraces above the modern flood plain are presently situated approximately eight and twelve feet above the present water level. Much recent native activity in the vicinity is evinced by the presence of old ax-cut stumps. A series of 12 one meter test pits placed in a more-or-less random fashion over the terrace sequence were excavated to various depths ranging from 30 cm. to 60 cm. below the surface. Although the potential for site preservation in this locality is considered very high, no archaeological material or other evidence for human occupation was recovered.

2. Two inter-connected lakes located five miles inland and one half to one mile north of the river were surveyed. The first and largest of these was given the field designation "Canoe Lake" as the entire shoreline was surveyed by a small canoe party. Adjacent to the west shore of this northwest-trending lake lies a low till ridge approximately 400 yards long and 100 yards wide rising perhaps 10-12 feet above the present lake level (ca. 750 ft. A.S.L.). The land form is conspicuous for its birch and aspen forest cover in the otherwise black spruce muskeg surroundings.

Extensive test excavation was conducted at Canoe Lake and consisted of 20 one meter squares oriented along three transects parallel to the western shore and till ridge. The stratigraphy may be summarized as

follows. Units in the spruce forest revealed an A-h horizon 10-15 cm. thick followed by a thin, dark B horizon below which is approximately 15 cm. of reddish-yellow silty sand with occasional pebbles. Profiles observed in the birch/aspen forested areas were similar excepting the A-h horizon which is only 4-5 cm. thick. A white ash layer ca. 1 cm. thick was observed at the interface of the A-h and C horizons (little if any B horizon exists) which is interpreted as White River volcanic ash as was observed in certain alluvial sections at Willowlake River. Subsequent laboratory analysis has confirmed this identification. No archaeological material was recovered from any of the excavation units.

The second lake, designated "Bell Lake," lies above Canoe Lake (at ca. 1000 ft. A.S.L.) on the west flanks of Bell Ridge of the McConnell Range. The two lakes are connected by an intermittent stream. The western shoreline of the small, half-mile long lake is no longer active and supports floating muskeg 20-30 feet from the shore. The eastern shoreline rises abruptly to merge with the slope of Bell Ridge.

The stratigraphy of areas tested along the west shore exhibits an A-h horizon 10 cm. thick underlain by a silty-clay unit to an unknown depth. The subsoil material is derived from the limestone bedrock exposed in Bell Ridge and shows only slight color alteration in the upper 20 cm. No archaeological remains of any kind were recovered from the Bell Lake.

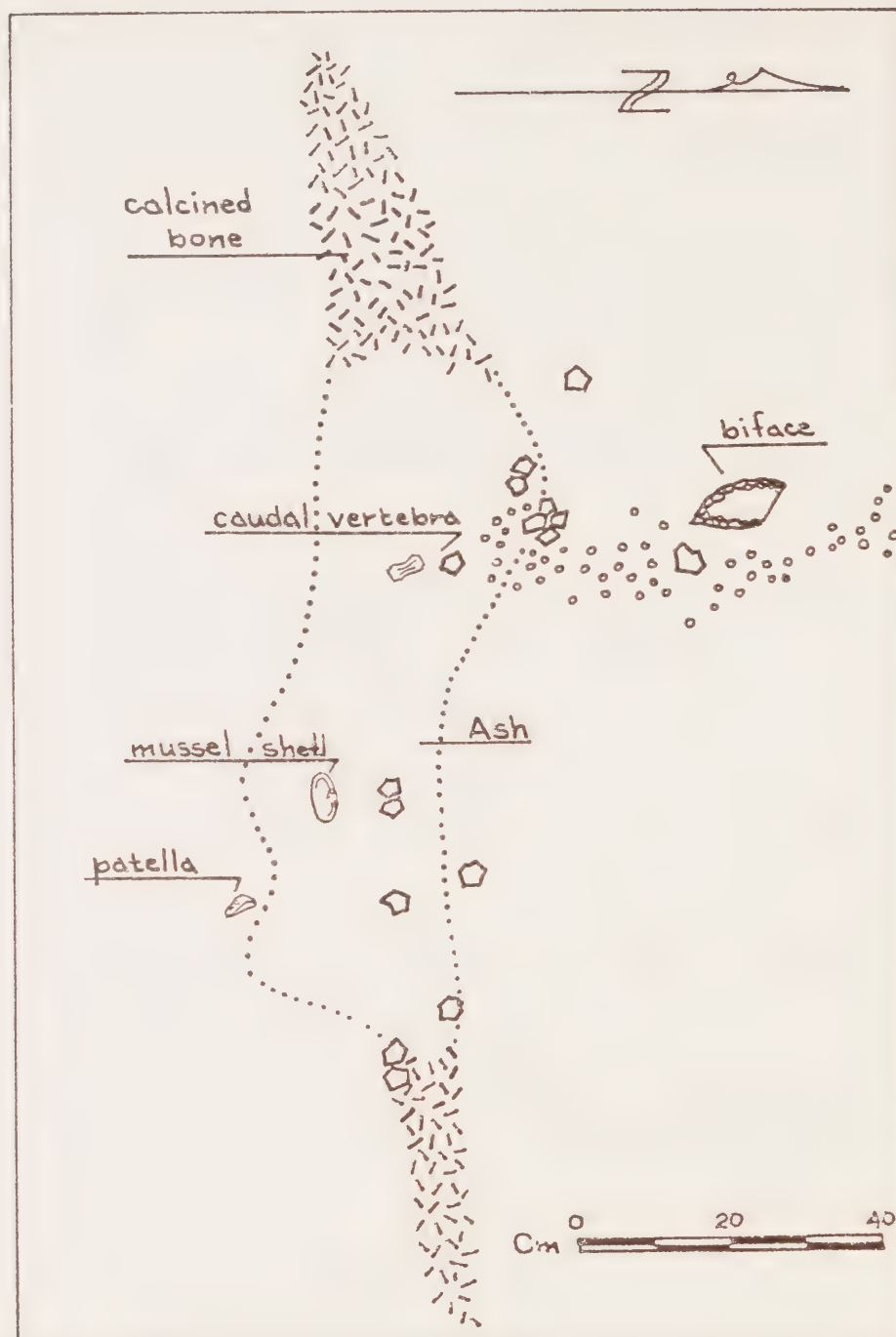
3. The River Between Two Mountains Pass through Bell Ridge (el. 670 ft. A.S.L.) was reached by overland trek along existing seismic cutlines in the region. Reconnaissance was limited to three days. One day was spent on the south side of the pass and two on the north. Ridges, prominent points of land, and riverbanks and terraces in the pass were examined. Alluvial terrace sequences were best preserved on the north bank of the river.

The north side of the pass was reached by fording the river. Ridges and slopes here were similarly surveyed, but in addition a series of alluvial terraces were tested with test excavations dug to a maximum depth of 30 cm. The two terraces stand *ca.* 25 feet and 30 feet above the river. No cultural material was recovered in any of these test units, although evidence of a former forest burn was observed at approximately 25 cm. below the surface.

Two sites were located, however, one of which is in an exposure created by a recent seismic cut-line through the pass at the base of Bell Ridge. The site, RBTM-1, is of prehistoric origin, consisting of a small hearth containing numerous fragments of burned and calcined animal bone, chipping detritus, and stone and antler artifacts (Fig. B-6). The feature was bisected and the contents removed for later laboratory analysis. Two one-meter squares, two contiguous one-meter squares with a 120 cm. X 180 cm. extension, and a one by one-half meter stratigraphic control pit were excavated at the site.

The second site (RBTM-2) consists of the remains of a 50-75 year old log dwelling. The cabin, located a few yards north of a former river channel, consists of three courses of wall logs covered by the collapsed remains of a pole roof capped with earth. Corners are the single saddle-notch type with door jambs ax-hewn and doweled in place. Overall dimensions are 13 X 10 feet center-to-center. Test excavation yielded no archaeological material.

Excavation of RBTM-1 and subsequent laboratory analysis of materials recovered from the hearth feature (RBTM-1) may be summarized as follows. Except for a small scatter of calcined bone and white welded tuff chipping detritus, the majority of cultural materials from the site originate from within or directly adjacent to the feature. The hearth itself is comprised



TEST PIT-2, HEARTH, FEATURE-1

key:

- ◻ fire-cracked-rock
- chipping detritus

Fig. B6.

of a bed of grey/white ash filled with burned and calcined bone. Its overall dimensions are 85 X 28 cm. and 2-3 cm. thick. Identifiable faunal remains contained in the matrix include caribou, hare, beaver, fish, and clam. Approximately 4-5 lbs. of fire-cracked rock were associated with the hearth.

Surrounding the hearth were flakes and detritus of milky quartz and light grey to brown welded tuff. A very thin biface made of arenaceous shale, 135 X 69 X 9 mm., was recovered 25 cm. from the edge of the hearth. One face exhibits a series of minute striations centered along the axis of the flat face and a second series perpendicular to these crossing near the center. Some slight polish is also discernable. Two other artifacts recovered from disturbed context near the hearth include a small milky quartz biface and a worked antler strip, 170 mm. long, cut from the cortex of an antler beam or tine. The latter artifact is slightly curved with parallel sides possessing projecting spurs on alternate corners of each end.

Observations made from the exposed profile in a stratigraphic control pit indicate that the original provenance of the cultural material at RBTM-1 is at the interface between a 16 cm. thick A-h horizon and the 8 cm. thick B horizon, or 16 cm. below surface (Fig. B-7). The subsoil is of alluvial origin as is the local geomorphology.

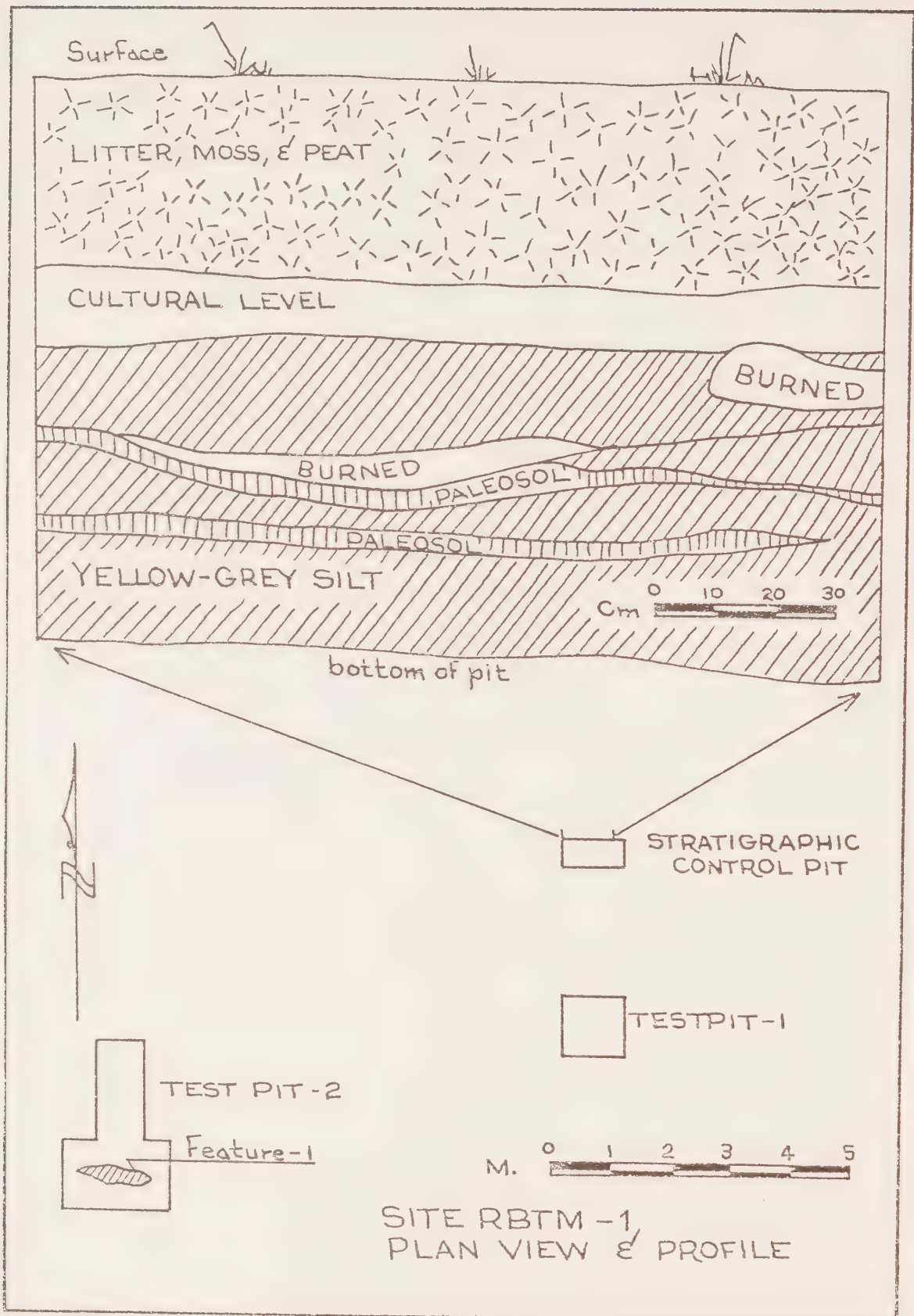


Fig. B7.

SITE: RBTM-1

LOCATION: River Between Two Mountains 62°55'45"N. 123°00'W.

ASSEMBLAGE:

Surface

Artifacts

1. Biface, milky quartz, 60mm X 35mm X 13mm.
2. Antler, cut strip. Slightly curved with projecting spur on alternate ends. 170mm X 14mm X 2.5mm.

Test Pit #2

Artifacts

1. Biface, arenaceous shale. Marginal retouching missing one end. Shows minute striae at right angles in the center of one side. 135mm X 69mm X 5mm.
2. Flake, biface thinning. Ignimbrite 8mm X 8mm.
3. Flakes, ignimbrite, light grey, 26 pieces, average 5mm.
4. Detritus, ignimbrite, light grey, 102 pieces.
5. Detritus, ignimbrite, brown, 2 pieces.
6. Detritus, milky quartz, 2 pieces.

Faunal remains

Rangifer

1. Patella, left.
2. Vertebra, caudal.
3. Phalanx, 2nd, lateral condyle, distal fragment.
4. Rib, distal fragment.

Castor

5. Vertebra, caudal.
6. Zygoma, right fragment.
7. Femur, distal condyle.

Lepus

8. Femur, left lateral condyle, distal.
9. Tibia, left, lateral condyle, distal.
10. Maxilla, alveolar process, fragment.
11. Incisor, 2 pieces.
12. Mandible, 3 pieces, right.

Microtus spp.

13. Femur, left, distal fragment.

14. Maxilla, fragment.

15. Nasal bone, fragment.

Miscellaneous

16. Mussel shell bi-valve, fragment (*Unio* spp.).

17. Boney plates (fish), 3 pieces.

18. Bone shaft (bird), 14 pieces.

19. Bone shaft (large mammal), 13 pieces.

20. Bone fragments, burned, 108 pieces.

Roche qui Trempe-à-l'Eau/Mount Gaudet Area

The Roche qui Trempe-à-l'Eau/Mount Gaudet complex is situated nine miles north of the settlement of Wrigley, Northwest Territories, Mackenzie River mile 365 at 63°20'N 123°37'W. It consists of a rather spectacular Middle Devonian limestone outcrop associated with a major thrust fault which transects the Mackenzie Valley at this point. The highest peak in the complex is Mount Gaudet which rises to nearly 2,000 ft. A.S.L. (Fig. B-8).

Immediately south, Roche qui Trempe-à-l'Eau plunges almost vertically into the waters of the Mackenzie forming a sheer wall for a distance of over one mile. Consequently, the width of the Mackenzie is constricted and current velocity reaches 6-7 miles per hour. Similarly, the east face of the complex rises steeply to the summit which is divided by a low saddle 1,500 A.S.L. This saddle separates Roche qui Trempe-à-l'Eau from Mount Gaudet which is some 500 feet higher than the former peak.

In 1789, Alexander Mackenzie reported sighting somewhere along the western flanks of the Mount Gaudet complex a small band of Athabascans who were allegedly hiding from marauding Cree Indians (Lamb 1970). Whether the complex served any function other than as a refuge is not known. Nevertheless, the ridge forms a striking feature on the landscape and may well have had a number of important resource and/or spiritual functions.

The east bank of Mackenzie River along the slopes of Mount Gaudet complex was examined for a distance of 1.5 miles north from the termination of the sheer walls of Roche qui Trempe-à-l'Eau. Seven one-meter test excavations were randomly placed along the bench or terrace on the west flanks of the ridge complex. A 4.5 mile circuit up the west face of the ridge into the central saddle was made. Several attempts were made to survey two of the larger lakes at the base of the complex, but only one of them was reached. The unnamed water body possesses no apparent shoreline other than at the margin of a floating muskeg. The circuit to the lake involved some four miles of muskeg travel.

A total of five days was spent in the Roche qui Trempe-à-l'Eau complex, two of which were consumed by rain and foul weather. Survey conducted during the balance of the period failed to turn up any evidence of archaeological significance.

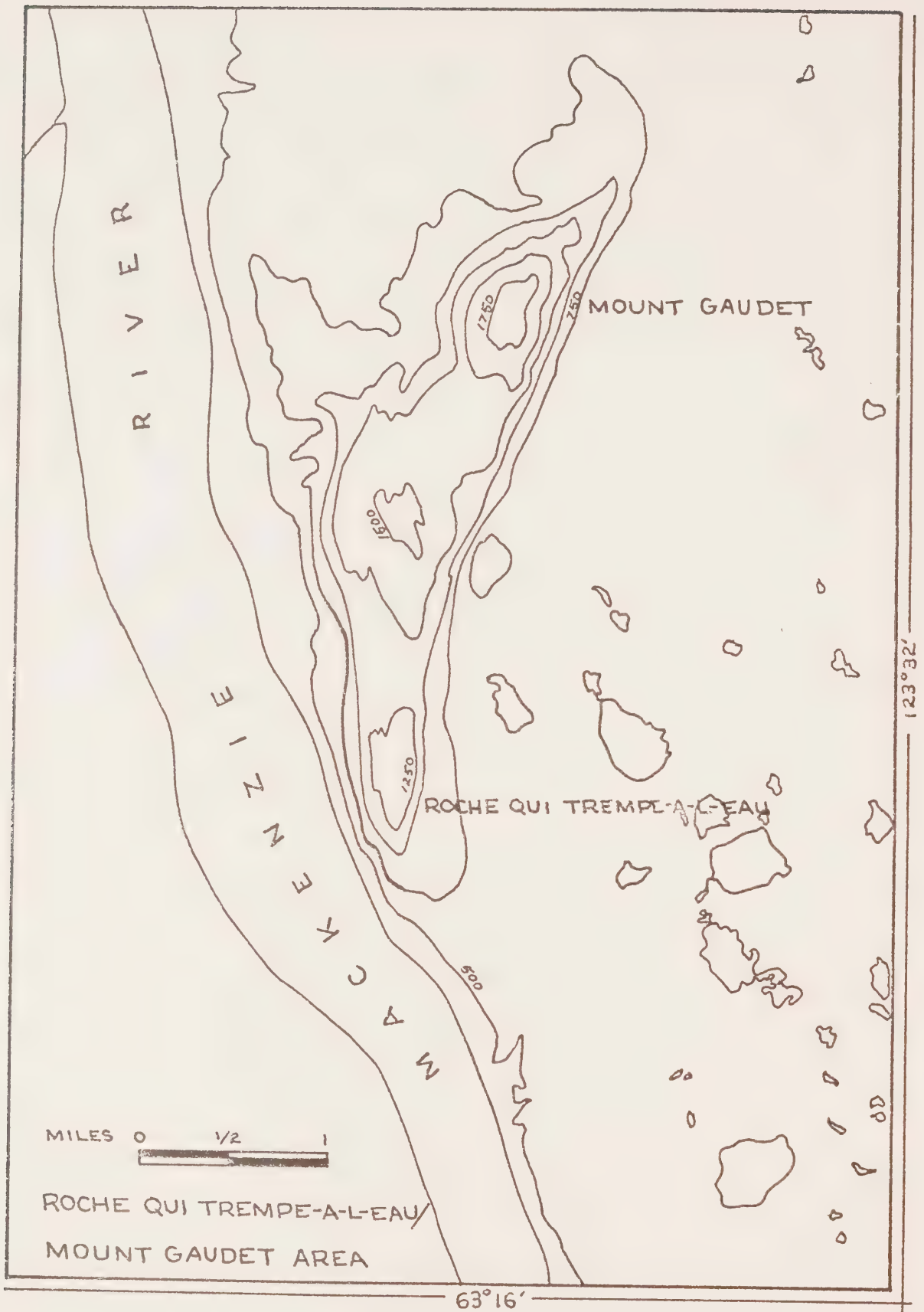


Fig. B8.

Blackwater River Area

The headwaters of Blackwater River are formed by 20 mile long Blackwater Lake situated some 25 miles east of Mackenzie River immediately east of the McConnell Range, Franklin Mountains. A pass through the range at approximately 650 feet A.S.L. has developed as a result of erosional downcutting by Blackwater River. The river drains a very large area of the northwestern portion of Great Slave Plain. It joins the Mackenzie 212 miles north of Fort Simpson (mile 412) at $63^{\circ}56'N$ $124^{\circ}10'W$, 250 feet A.S.L. Blackwater Lake itself is fed by tributaries draining regions adjacent to Fish Lake and as far south as Willowlake River.

Two clusters of recent cabins are shown on modern topographic maps of the Blackwater River area. The first consists of two small cabins with earth covered roofs and indications of at least two other structures approximately 500 yards east of Mackenzie River on the north bank of Blackwater River (Fig. B-9). The site was given field designation BW-1 and is probably the remains of the trading post operated by independent trader Charles Cox from 1928 to 1931(?) (Usher 1971:71).

Another isolated cabin ruins was located on the north bank of Blackwater River ca. $3/4$ mile east of Mackenzie River and approximately 800 yards east of site BW-1. This site (BW-2) parallels the river for a distance of at least three miles from the mouth. It consists of the remains of a large stone fire-place situated in the northwest corner of a single structure whose limits are defined by visible wall-course remains on all four sides. A small storage pit occupies the center of the structure. The general condition of the remains suggests that the cabin probably originates from around the turn of the century.

A second cluster of cabins is situated adjacent to a Bench Mark on the west bank of Mackenzie River opposite the mouth of Blackwater River. The cabins originate from a trading post operated by independent trader Amos Schellenberger from 1937/38-(?), and associated native dwellings. The latter cabins are well endowed with various articles of ethnographic interest.

A third very large group of cabins is located 2.5 miles north of Blackwater River on the east bank of Mackenzie River. The location is believed to be that referred to by Usher (1971) as a trading post operated from 1930 to 1932 by independent trader L.D. Vibbard. The site, designated BW-3, consists of a series of four cabins, three of which are oriented magnetic North ($37^{\circ}57'E$ of True North). The fourth and probably the oldest structure is oriented True North and has partially collapsed. Eight additional small out-buildings were also observed, most of which were probably dog houses. The largest of the four structures measures approximately 20 feet square and was very likely the central trading house.

A field base camp was established one half mile from the mouth of Blackwater River for a period of five days. Archaeological survey was conducted eastward along both the north and south banks of the river for a distance of 2.5 miles and 1.5 miles respectively. Terraces were tested and exposures along both banks examined. A large area previously cleared and occupied by the Department of Public Works on the south bank of the confluence was also checked. Terraces and meander ridges on the north bank were extensively tested. The east bank of Mackenzie River was reconnoitered for a distance of two miles both north and south from the confluence. Portions of the Canadian National Telecommunications cut-line and other recent cut-lines in the general area were also scrutinized. The summit of the 600 foot north valley wall was surveyed and exposed soil profiles in the many intermittent streams on the slopes were examined. A total of 22 one-meter squares were excavated within the terrace complex and north banks of the river.

The survey for archaeological sites in the area of Blackwater River yielded no remains of prehistoric origin and only one site (BW-2) which may be of historic interest. The only other material recovered in the general area consists of 12 fragments of human skeletal material collected from the surface of the telecommunications line a short distance east of the large trading post site, BW-3.

Osteological material from the cut-line location, (BW-4), consists of

a left-central upper incisor, and left first rib of what appears to be an adult. Additional material includes the glenoid portion of a right scapula, a left-second proximal phalange missing the proximal end, the neural-arch portion of the fifth or sixth cervical vertebra, fragments of the right and left parietals in the region of the Bregma, and three fragments of rib attributable to a child. The extremely small size of the vertebra, phalange, and very thin parietal fragments as compared to the adult-sized first rib and well-worn incisor is the basis for suggesting the presence of two individuals. Two small, unidentifiable bone fragments and a white plastic button were the only other associated materials. The proximity of the bone remains to the 1930's trading establishment suggests that the burials (?) may be associated with that site.

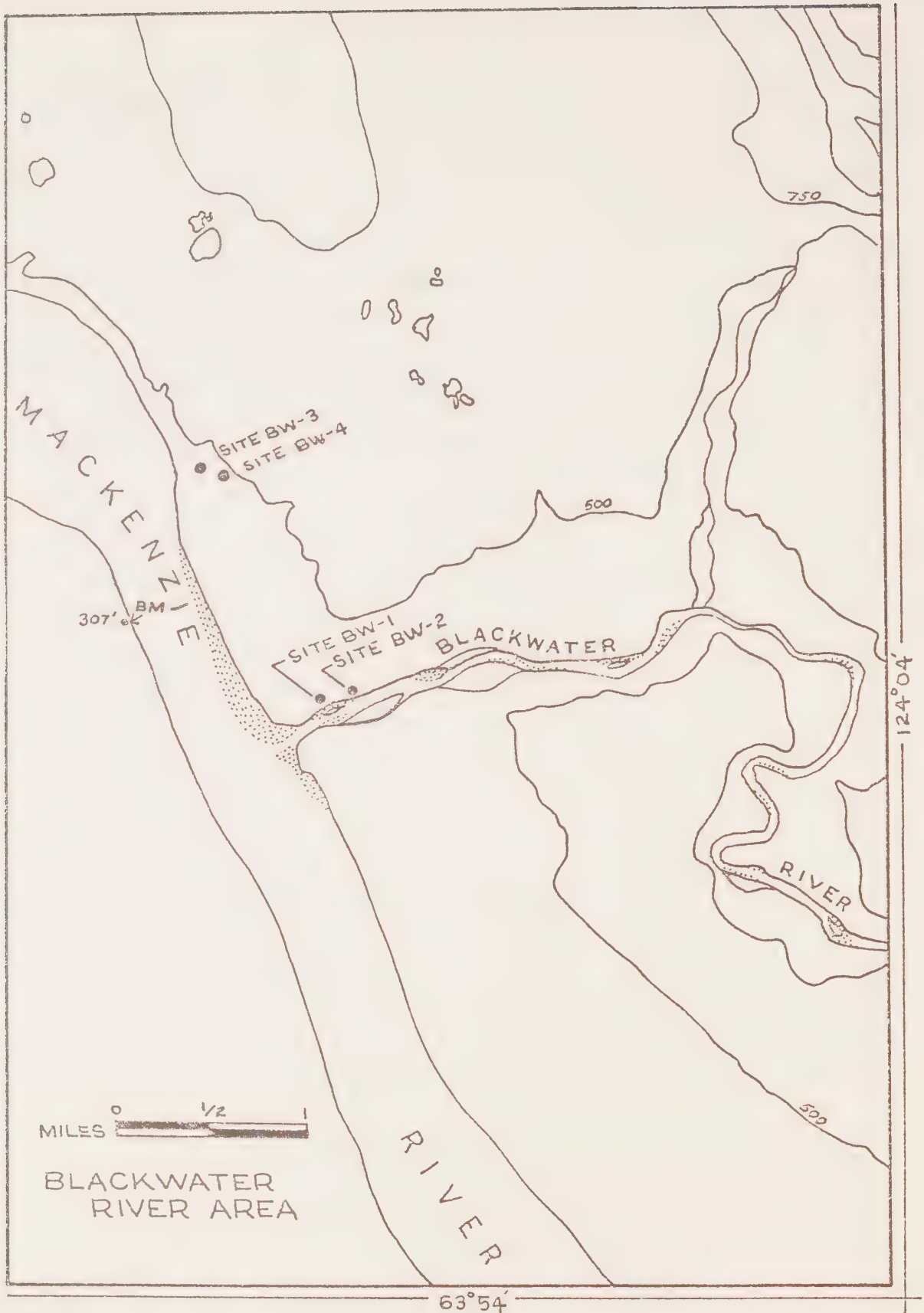


Fig. B9.

SITE: BW-1

LOCATION: Blackwater River 63°56'45"N 124°10'00"W.

ASSEMBLAGE:

Surface

The presumed remains of a trading post operated 1928-1931(?) by independent trader Charles Cox. Site consists of two log dwellings facing Blackwater River. The western cabin is ca. 15 feet square, dirt and pole roofed, with a small annex extending from the north wall. The eastern cabin is a low ca. 15 feet X 20 feet structure with dirt roof and floor. There are indications of at least two earlier structures.

SITE: BW-2

LOCATION: Blackwater River 63°56'55"N 124°09'10"W.

ASSEMBLAGE:

Surface

A single log dwelling, the remains of which are represented by well defined wall-course remains on all four sides, a central storage pit or cellar, and a large stone fireplace/chimney remains in the north-west corner. Outside dimensions of the structure are approximately 15 feet by 16 feet.

SITE: BW-3

LOCATION: Blackwater River 63°57'50"N 124°11'20"W.

ASSEMBLAGE:

Surface

The presumed remains of a trading post operated 1930-1932 by independent trader L.D. Vibbard. The site consists of four log structures having outside dimensions 14 feet by 14 feet, 20 feet by 20 feet, 14 feet by 16 feet, and 14 feet by 14 feet. Eight additional small out-buildings are present. The largest cabin consists of square hewn logs dove-tailed at the corners, and fastened with dowel pegs.

SITE: BW-4

LOCATION: Blackwater River 63°57'50"N 124°10'50"W.

ASSEMBLAGE:

Surface

Artifacts

1. Button, plastic white, two perforations joined by shallow groove, 19mm in diameter. Central portion convex with pronounced rim around circumference.

Faunal Remains

Homo sapiens

1. Rib, first left (adult).
2. Incisor, left upper central (adult).
3. Scapula, right fragment of glenoid and spino-glenoid notch (sub-adult).
4. Phalanx, left proximal, second less proximal end (sub-adult).
5. Parietals, right and left at Bregma; the right having approximately equal portions of sagittal and coronal borders while the left is a small portion of the sagittal border only (sub-adult).
6. Vertebra, cervical 5 or 6, portion of the neural arch (sub-adult).
7. Rib, head, med. and dist. fragments, three pieces.

Fort Norman/Great Bear River Area

Great Bear River enters the Mackenzie from the northeast flowing some 63 miles from Great Bear Lake. The settlement of Fort Norman is situated on the right bank of Mackenzie River immediately upstream from this confluence at mile 513, $64^{\circ}54'N$ $125^{\circ}35'W$ (Fig. B-10). Great Bear River is a major tributary of the Mackenzie and drains a large portion of the Great Bear Plain. The latter region is separate from the Mackenzie Lowlands by the Norman Range of the Franklin Mountains resulting in the formation of St. Charles rapids located on Great Bear River 30 miles upstream from the mouth. A prominent land-mark known as "Bear Rock" stands just over 1,500 feet A.S.L. immediately west of the confluence and opposite the settlement. A chain of very large, narrow lakes situated in a major fault zone in the Norman Range drain into Great Bear River from the northwest via Brackett River six miles from the mouth.

The right bank of Mackenzie River was reconnoitered in the vicinity of the settlement for a total distance of 2.5 miles eastward from the confluence. Recent construction of a road along the modern flood-plain immediately above the beach offers a more-or-less continuous exposed profile for one mile along the river in this area.

Two terrace levels at the settlement were examined through exposures resulting from erosion and construction. An often used bush trail running along the summit of the steep bedrock outcrop one mile east of the town gave access to exposures at the 250 foot contour where bedrock is overlain with lacustrine sand and silt.

Six terrace remnants all at approximately the same elevation were examined and tested on Great Bear River. A total of 17, one meter and one half meter test excavations were emplaced on the east banks and 29 similar units excavated on the west banks. In both cases, however, penetration was often limited to immediately below the mosses (ca. 10-20 cm) where permafrost is encountered. An additional 12 test units were excavated at approximately 250 feet A.S.L. atop the west bank 1.5 miles upstream from the mouth.

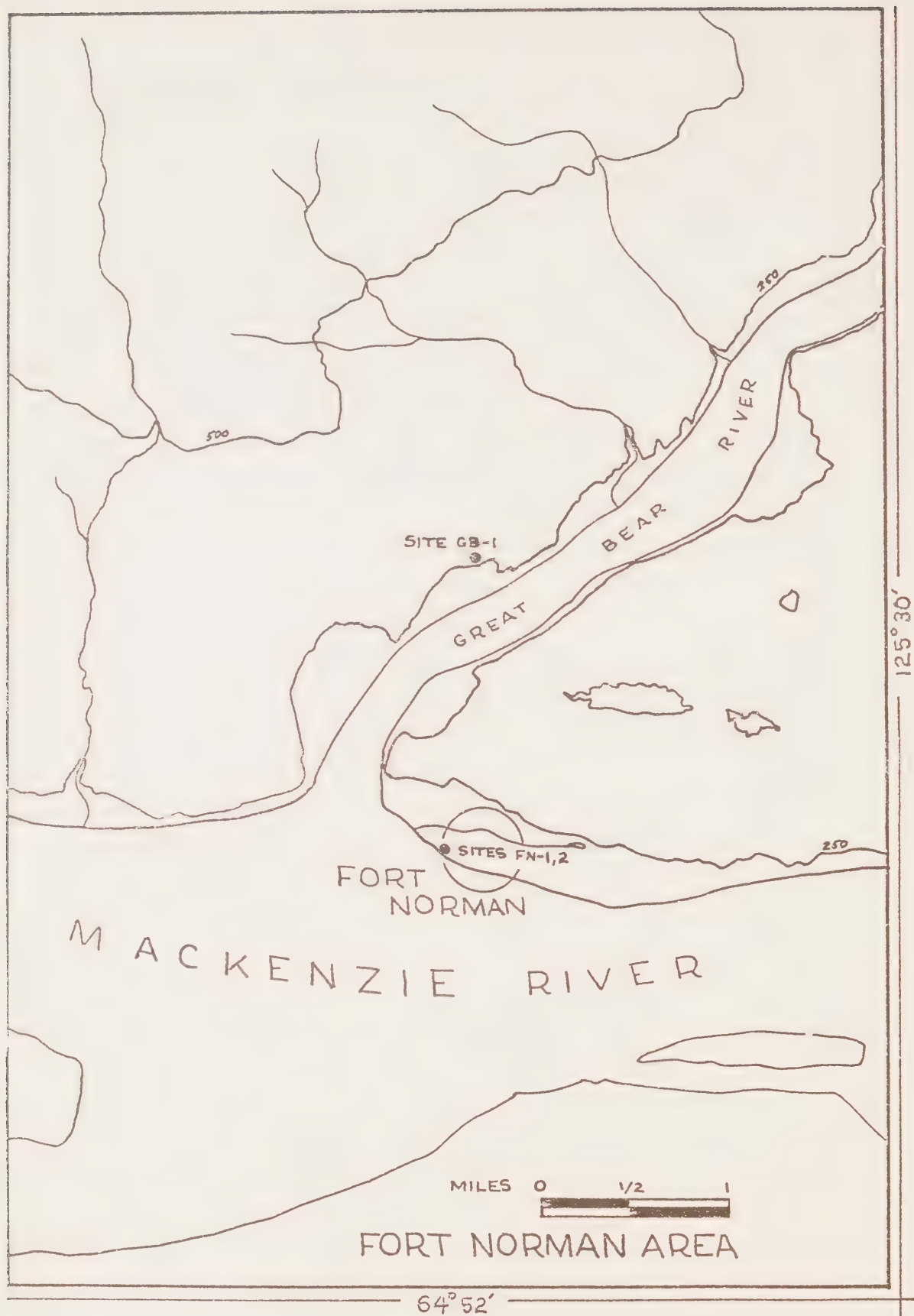


Fig. B10.

Six miles upstream from Mackenzie River, survey and testing was conducted in the vicinity of Brackett River. The testing was confined to a 150 foot high sand capped ridge one half mile from the river mouth and overlooking an ox-bow lake in the Brackett River Valley. Thirty one-meter and one-half meter units were excavated in the general area which is composed of a park-like birch/aspen community. Ten of the exploratory units were concentrated in a single area while the balance was scattered randomly for a distance of one mile.

The net results of seven days of archaeological survey in the Fort Norman region was the discovery of three prehistoric sites. Two of these were located on the lower terrace below the Fort Norman town site. The third was located by exploratory excavation along the tops and margins of the west valley walls of Great Bear River. The two sites below the settlement were given field designations FN-1 and FN-2 while the single component on Great Bear River was designated GB-1.

Site FN-1 consists of a number of large birch bark fragments all of which bear evidence of cutting, perforation, and folding (Fig. B-11). The material was located in an exposure of the 200 foot (lower) terrace cut by a lane leading to the beach below. The bark artifacts are situated in river alluvium approximately 100 cm below surface and over an area of 75 cm horizontally. The artifacts are divided into three units as they were naturally clustered. The units are designated A, B, C, and A' which was later added to accommodate additional material recovered from beneath Unit A.

The bark artifacts lie within a stratum of discontinuously banded, grey and black fine silt interspersed with bits of wood and charcoal compressed into very thin lenses (Fig. B-12).

Birch bark material recovered from Unit A consists of one large sheet and several smaller fragments. The large sheet has been folded forming a piece 20 cm X 20 cm having a double layer 12 cm to 15 cm wide. One side of the piece has a straight cut edge with perforations spaced at intervals of ca. 15 mm extending along the entire edge.

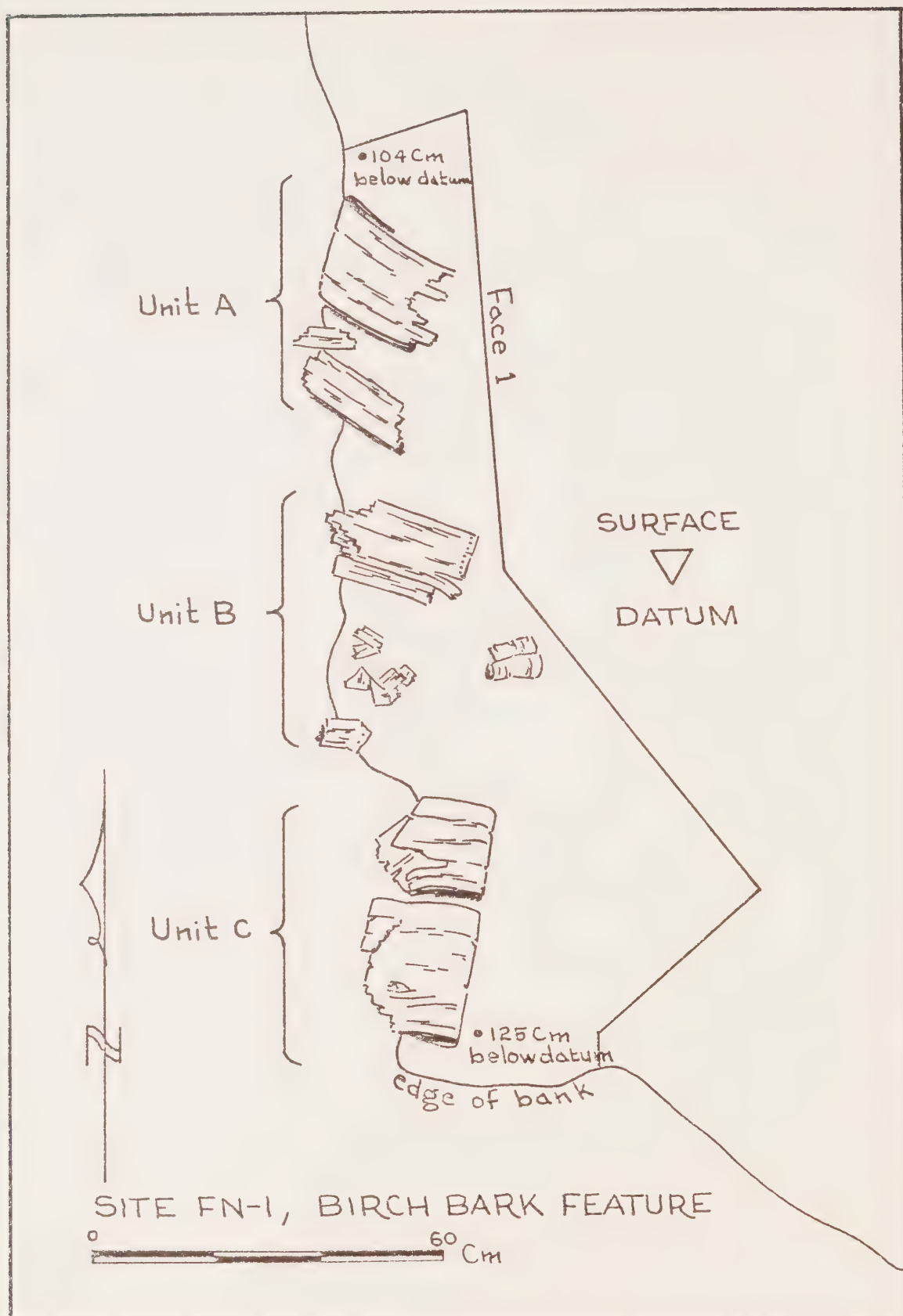


Fig. B11.

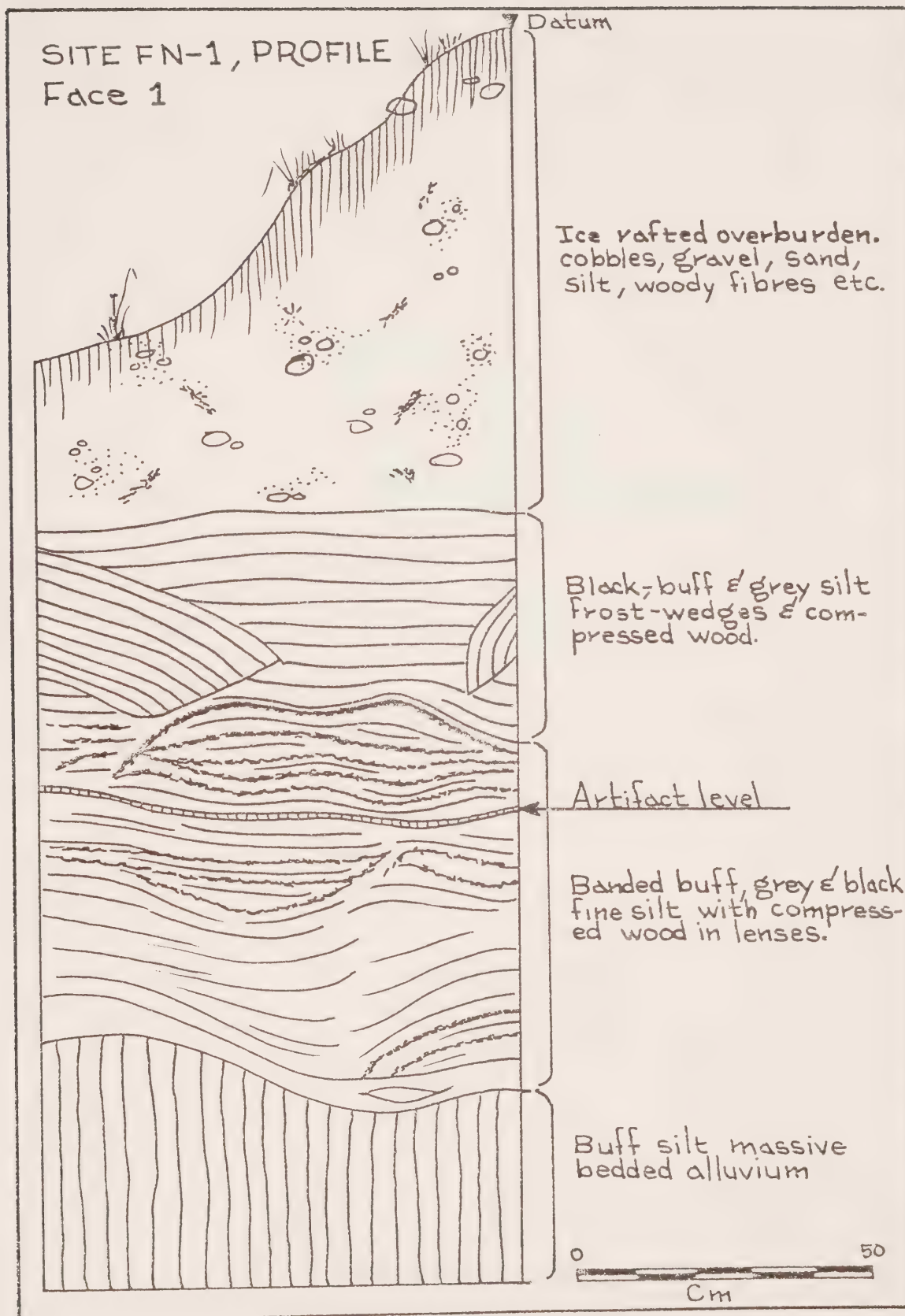


Fig. B12.

Unit B contains bark fragments consisting primarily of two roughly rectangular pieces each approximately 10 cm X 20 cm with perforations along two adjacent edges on one piece, and two converging rows 20 mm from the edge on the other. Unit C includes a rectangular piece 15 cm X 38 cm which has been folded, each side to the center and slightly overlapping, and fastened through a single row of perforations appearing in four groups having six to 10 perforations each. The groups in turn are spaced ca. 20 mm apart.

Two large sections of cut and perforated birch bark recovered from beneath Unit A (Unit A') are of special interest since they were identified by local informants John and Elizabeth Yekaleya as portions of a type of bark canoe seat or cushion which was manufactured and used within their life-time.

The canoe seat or cushion as it was described by the Yekaleyas was apparently made by simply folding the edges of a sheet of bark to the centre and stitching them in place. A feature which might then be added consists of folding the corners of the cushion back over the main portion much as one might wrap a long, flat parcel. The result is a cushion with pointed rather than flat or blunted ends.

The bark remains recovered in Unit A' are apparently the remains of this second, more elaborate type. The artifact was reportedly used as a cushion in the bottom of a watercraft to distribute the weight of a sitting or kneeling individual over a wider area of the fragile craft.

Since there is no reliable way to estimate the rate of deposition of the alluvium exposed at site FN-1, it is difficult to estimate the antiquity of the bark material recovered from the site except to say that the artifacts are almost certainly of prehistoric origin. Whatever its absolute age, the material is of interest concerning the advent of the birch bark watercraft in aboriginal Mackenzie Valley.

Site FN-2 consists of a large hearth located in an exposure of the lower terrace at the edge of property owned by Mr. Jack Hardy, a long-time resident of Fort Norman. The hearth is comprised of ash, calcined bone remains of hare, fish, and beaver, and fire-cracked rock (Fig. B-13). The feature lay 12 cm to 20 cm below the surface and is 75 cm X 130 cm in plan dimension. Maximum

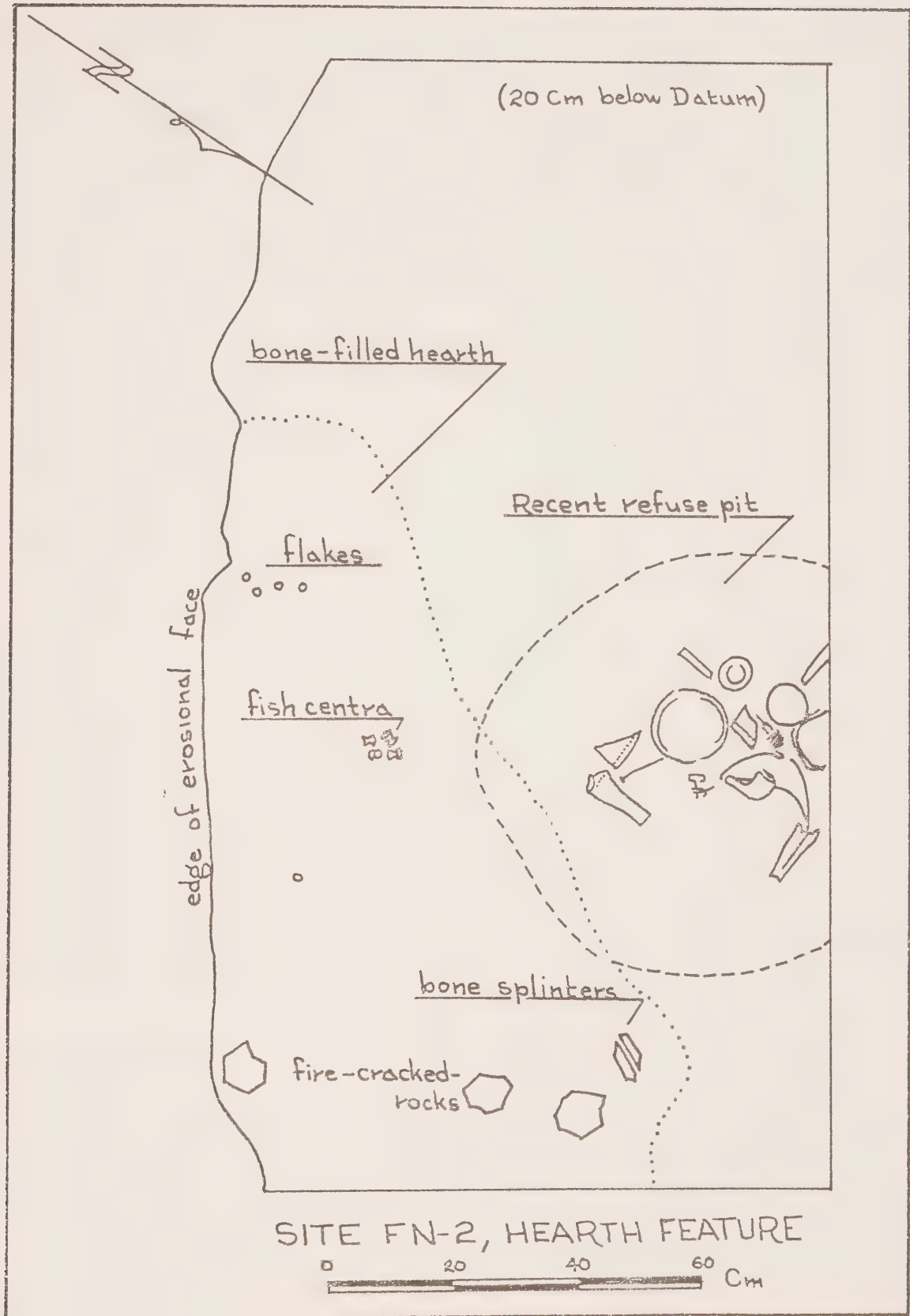


Fig. B13.

vertical depth is 10 cm at the center. The feature is contained in a banded black, orange, and buff colored alluvial silt unit containing intermittent ash and charcoal layers suggestive of periodic burning (Fig. B-14). The silt unit is 20-25 cm thick.

A test unit measuring 180 cm X 85 cm was emplaced above the exposed hearth and the upper 15-20 cm of overburden removed by trowel. When thoroughly exposed, the hearth appeared to be roughly bisected by the erosion and slumping which had destroyed an estimated 50% of the feature. A small intrusive pit 70 cm in diameter and filled with recent refuse borders the west edge of the hearth. Both deposits were completely exposed and their contents removed for later laboratory analyses. The extreme fragility of tiny calcined bone fragments contained in the hearth made this procedure essential. A total of 64 lbs of Hearth-fill was recovered. Fire-cracked rock amounted to 8.5 lbs.

Subsequent flotation of 50% (32 lbs) of fill recovered from the hearth yielded 2.5 lbs of tiny calcined bone fragments. A minimum count of species contained in the ash matrix includes hare (5), beaver (1), and fish (?). Fish are represented by 64 cranial fragments and 198 cantra, 37% of which are whole. Charcoal remains adequate for carbon-14 assay were also recovered.

In addition to the faunal and botanical material, 52 pieces of blue-grey ignimbrite consisting of four flakes with percussion bulbs, three biface thinning flakes, and 45 pieces of detritus were recovered. A thick retouched quartzite flake 75 mm X 46 mm and 24 mm thick was also collected from a recently disturbed area. Directly below the feature in the active beach zone, a small, lanceolate biface made of similar blue-grey ignimbrite was collected by a passerby which may have originated from the feature. Additional details plus an inventory of material recovered from the intrusive refuse pit are presented at the end of this section.

The prehistoric component discovered as a result of exploratory excavation along Great Bear River (GB-1) is situated ca. 150 feet above the river at 250 feet A.S.L. on a narrow sand ridge which parallels the bank of the river. The ridge is some 60 yards long and perhaps 10 yards wide. The cultural material originates from the base of the A-h horizon approximately five centimeteres below surface. The interface between the humus and B horizon is marked by a thin elluviated zone (Ae horizon) from which most of the artifacts

- KEY
- 1 Dark organic humus
 - 2 Banded black, orange, buff silt
 - 3 Grey & yellow silt, irregular bedding
 - 4 Grey-buff silt, thinly laminated
 - 5 Grey-buff silt, massive & compact

SITE FN-2, Feature Profile

0 20 40 60 Cm



Fig. B14.

derive (Fig. B-15). The soil type may be classified as regosol.

Two small flakes of milky quartz were recovered initially from two one-meter test units excavated on the ridge. Additional testing which consisted of two intersecting 5.0 M and 5.5 M trenches, one meter in width yielded seven flakes and detrital pieces. Except for two pieces of purplish-grey argillitic shale, all of the lithic material is milky quartz. The latter material is available almost anywhere in the region from exposures on the Canadian Shield.

Unfortunately, no recognizable features were associated with any of the material and no faunal or other organic remains were encountered.

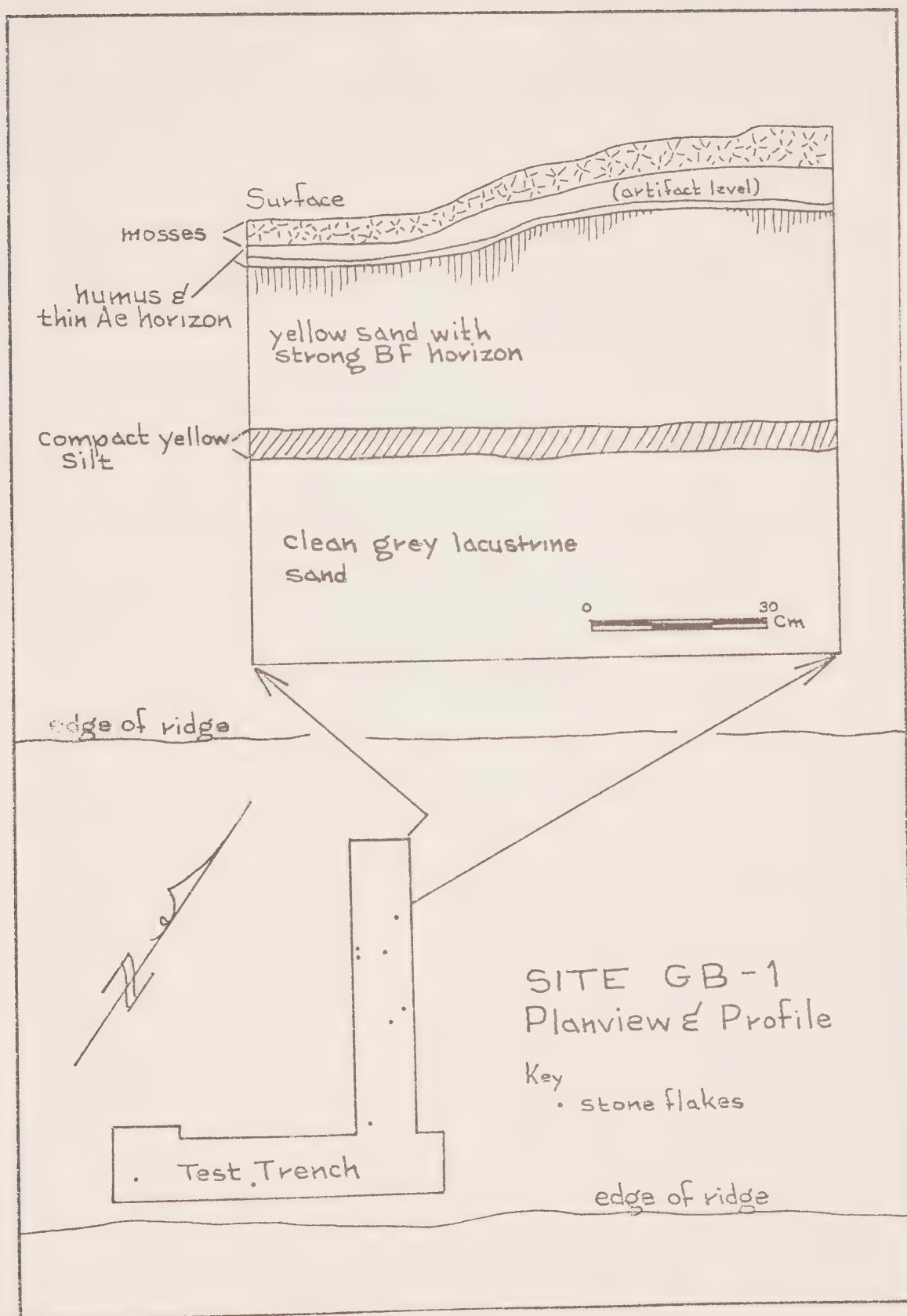


Fig. B15.

SITE: FN-1

LOCATION: Fort Norman $64^{\circ}54'03''\text{N}$ $125^{\circ}34'50''\text{W}$.

ASSEMBLAGE:

Test Location #1

Artifacts

1. Birch bark, large sheet folded double. 20 cm X 20 cm with perforations along one edge spaced 15 mm apart. (See Unit A).
2. Birch bark, (2 pieces), 10 cm X 20 cm rectangular with perforations. (See Unit B).
3. Birch bark, 15 cm X 38 cm rectangular folded both sides to the center and overlapped. Perforations occur in a single row appearing in groups of from six to ten perforations each. (See Unit C).
4. Birch bark, 40 cm X 12 cm rectangular, two pieces folded one inside the other. The outer sheet bears perforations spaced 20 mm apart. (See Unit A').
5. Birch bark, triangular (equilateral) 25 cm. Two edges are folded to the center and joined by a seam extending from the apex to the base. Perforations are spaced 12 mm apart. (See Unit A').
6. Birch bark, identical to #5 above but fragmentary.

SITE: FN-2

LOCATION: Fort Norman 64°54'03"N 125°34'50"W.

ASSEMBLAGE:

Test Pit #1 (hearth)

Artifacts

1. Flakes, biface thinning, blue-grey ignimbrite. Three pieces.
2. Flakes, blue-grey ignimbrite, retain percussion bulb, 4 pieces.
3. Detritus, blue-grey ignimbrite, 45 pieces.

Faunal remains

Lepus

1. Humerus, right distal fragment.
2. Humerus, left distal fragment.
3. Humerus, right proximal fragment.
4. Humerus, left proximal fragment.
5. Scapula, right proximal fragment.
6. Scapula, left proximal fragment.
7. Scapula, right spinous process.
8. Scapula, left spinous process.
9. Ulna, right proximal fragment, two pieces.
10. Ulna, left proximal fragment, three pieces.
11. Ulna, left shaft fragment.
12. Radius, right proximal fragment, two pieces.
13. Radius, left proximal fragment, three pieces.
14. Femur, head, right.
15. Femur, right distal lateral condyle.
16. Pelvis, right acetabulum, three pieces.
17. Pelvis, left acetabulum, three pieces.
18. Pelvis, right ilium fragment.
19. Metatarsal, (?) distal fragment, two pieces.
20. Phalanx-1, posterior distal fragment, three pieces.
21. Phalanx-1, posterior proximal fragment, four pieces.
22. Phalanx-1, anterior, two pieces.
23. Phalanx-1, anterior distal fragment, two pieces.
24. Phalanx-3, anterior, two pieces.
25. Ribs, proximal fragments, three pieces.
26. Vertebra, lumbar, fragments, two pieces.
27. Maxilla and zygoma, right, five pieces.
28. Maxilla and zygoma, left, five pieces.
29. Zygomatic process, right, two pieces.
30. Zygomatic process, left.
31. Incisor, left upper.
32. Mandibular condyle, right.
33. Mandibular condyle, left, three pieces.
34. Mandible, angular process, left.
35. Mandible, body and first molar, left, two pieces.
36. Mandible, body with 4th and 5th molar, left.

Castor

37. Fibula, right shaft fragment.
38. Metatarsal-3, right proximal (epiphysis).
39. Vertebra, caudal, two pieces.
40. Vertebra, caudal epiphyses, three pieces.
41. Phalanx-1, shaft fragment.

Pisces

42. Centra, 73 pieces.
43. Centra, fragments, 125 pieces.
44. Cranial fragments, 64 pieces.
45. Otoliths, 7 pieces.

(Intrusive Pit) Test Pit #1

Artifacts

3. File, steel, missing tang.
4. Nail, iron, 4 inch, common.
5. Cartridge case, brass, Dominion Cartridge Company, .30-.30 cal.
6. Tin strip, 63mm X 10mm X 5mm.
7. Tin Cover, 65mm dia., 10mm rim.
8. Tin can (base) 108mm dia., 12mm lip.
9. Carbon, flashlight battery core.
10. Tin can key.
11. Glass, clear, fragment.
12. Light bulb base with filament post.
13. Ceramic, rim sherd, glazed white, 80mm dia.
14. Insulator, ceramic, white.
15. Pipe, smoking, wood fragment.
16. Leather, glove or mitten gusset.
17. Tin, lid fragment, 108mm dia.
19. Wire, (bails) .105 in. dia. 2 pieces.
20. Wire, double twist, ca. .100 in. dia. strands.
21. Cordage, (knotted) fiber fragments.

Faunal Remains

Rangifer

46. Radius, left proximal end (sawed).
47. Patella, right.
48. Phalanx-1, proximal end fragment.
49. Phalanx, distal condyle only.
50. Vertebra, cervical, transverse process.
51. Vertebra, cervical, fragment of transverse foramen.
52. Bone, fragments (unidentified), burned and calcined.

Miscellaneous

1. Pebble, flat-circular 50mm dia. 15mm thick.

SITE: GB-1

LOCATION: Great Bear River 64°34'30"N 125°55'25"W.

ASSEMBLAGE:

Test Trench #1

Artifacts

1. Flake, biface thinning, milky quartz, spatu-shaped expanding from bulb. 29mm X 31mm X 6mm.
2. Flake, expanding, milky quartz, small flat platform. 25mm X 19mm X 4mm.
3. Flake, parallel sided, milky quartz, no bulb. 20mm X 14mm X 3mm.
4. Flake, expanding, milky quartz. 15mm X 22mm X 4mm.
5. Detritus, milky quartz, two pieces.
6. Core (?) fragment, milky quartz, blocky. 49mm X 26mm X 15mm.
7. Detritus, purple-grey argillite, two pieces.

Sans Sault Rapids Area

Sans Sault Rapids is located at Mackenzie River mile 632 64°42'N 128°48'W where the river intersects the termination of the Norman Range of the Franklin Mountains. Here the river takes a sharp bend changing its course from due west to north, pivoting around the base of East Mountain which rises to a height of 1,436 feet A.S.L. (Fig. B-16). The mountain is formed by a major fault scarp which is revealed as a sheer, nearly vertical north facing wall in which middle-Devonian and Ordovician age limestones and shales are exposed. The mile wide Sans Sault Rapids are a result of this fault disturbance leaving only a swift, narrow channel open to navigation.

Downstream 3.5 miles from the rapids Hanna River enters from the east draining the region north of the Franklin Mountains. Bat Hills, situated two miles further downstream from Hanna River are also the result of tectonic disturbances. Donnelly River enters the Mackenzie from the east at mile 642 65°49'N 128°51'W some six miles below Bat Hills.

Except for relatively small, isolated areas, nearly all of the region extending north from the Mackenzie in the vicinity of East Mountain to Donnelly River has been exposed to recent forest fire. In many areas, large tracts of charred standing spruce may be observed. Removal of insulating forest "duff" along streams and rivers has resulted in severe erosion and derangement of local drainage patterns. Hanna River is apparently especially susceptible to damage due to the presence of very soft sediments which form its banks. Severe slumping and subsequent erosion has resulted in nearly complete obliteration of former terraces at the mouth.

A base field camp was established at the point on the right bank of Mackenzie River at mile 630, 1.5 miles above Sans Sault Rapids: the river bank here consists of an active flood-plain extending approximately 1,000 yards inland where it intersects the steep southern flanks of East Mountain. Consequently, survey in the immediate area was directed toward examination of three inland lakes; Ration Lake and two other unnamed lakes, which were given the names "Round Lake" and "Jenny Lake" for survey purposes.

Round Lake is situated approximately 1.5 miles east of Mackenzie River at the base of East Mountain and was reached by means of overland trek. The trek involved a 12 mile circuit which included the entire north shoreline of the 1.25 X .75 mile lake. The lake has become considerably diminished in recent times owing to the encroachment of muskeg. The shoreline is generally poorly defined and ringed with sedge, willow, and muskeg zones. Two localities along the north shore were tested and a total of twelve one-meter squares excavated. Soils exposed by overturned spruce trees resulting from the forest fire were also examined. No archaeological material was recovered from Round Lake nor from the mouth of Hanna River which was included in the circuit.

Jenny Lake is located in a faulted region which forms a high pass through the eastern end of East Mountain. Elevation of the lake is approximately 400 feet A.S.L. The north shore is gently sloping while the southern margin rises as a sheer wall 150 feet high having little or no active beach zone at its base. The lake was reached by means of overland trek. One day was spent on the shoreline of the 1.25 X .25 mile lake during which one-half of the eastern lake shore was examined and tested. About 50% of the area surrounding the lake was burned and many large spruce trees have subsequently overturned offering numerous soil exposures which were checked. One small flake of basalt (?) was recovered in this manner along the north shore some 200 yards from the east end of the lake. The locality was designated JL-1 but further testing failed to bring any additional material to light.

Ration Lake was visited on the same three day circuit and lies 1.5 miles southeast of Jenny Lake on a 300 foot high plateau one-half mile south of East Mountain. A temporary camp was established on the north shore and one and one-half days were spent reconnoitering and testing along 1.5 miles of shoreline. The beach is well defined and active along the north shore and occasioned by many small pocket beaches. Several tiny streams enter from the north exposing soil profiles along the shoreline. A well defined bench approximately 5-6 feet above the lake borders much of the north shore. Most of the area is easily accessible and soil exposures are widespread, due to burning.

A total of 18 test pits were excavated at the eastern termination of the shoreline survey which revealed beach deposited sand and silt strata but no cultural material. Eight additional test pits were placed at intervals along the 1.6 miles of shoreline examined. Another 12 exploratory units were excavated at the extreme northwest end of the lake on two beaches approximately 3.0 feet and 10 feet above the lake level. No archaeological material was recovered from the test excavations.

A single large flake of dark red heat-altered shale was recovered from the active beach zone .75 miles from the western termination of the lake. The artifact bears evidence of retouching along both edges and a portion of the distal end. The material is similar to that observed in the burning coal seams in the Fort Norman area. The location was designated RL-1 but subsequent examination and testing in the area yielded no additional material.

Brief reconnaissance was conducted in the Bat Hills region five miles downstream from Sans Sault Rapids which involved a 3.5 mile circuit. The target in Bat Hills was a small crescent-shaped lake at ca. 350 feet A.S.L. The lake was designated "Bat Lake" for survey purposes. Reconnaissance was focused along the southern shoreline and the limestone ridges and beaches adjacent to it. A total of six exploratory units were excavated at two separate locations but no artifactual material was recovered.

The mouth of Donnelly River which enters the Mackenzie ten miles below the rapids was the focus of archaeological survey for a two day period during which both north and south banks were examined and tested. Six one-meter squares were excavated on a terrace standing directly north of a quarter-mile long oxbow lake some 400 yards from the mouth of Donnelly River. No results were obtained. Reconnaissance was carried as far north as the flanks of Beavertail Mountain but no artifacts were recovered. Eighteen test excavations were emplaced on the south banks of Donnelly River and sixteen on the north immediately adjacent to the mouth. In addition, the soil and root mats of numerous fallen spruce trees were examined.

A small concentration of calcined bone fragments was observed and recovered from the root mat of an overturned spruce tree on the north bank of Donnelly River 100 yards east of an abandoned log dwelling. The location was designated DR-1 and three, one-meter squares were excavated without results. The bone fragments recovered include the remains of immature beaver and fish. No artifacts were associated with the faunal material which is tentatively considered as having originated from a hearth.

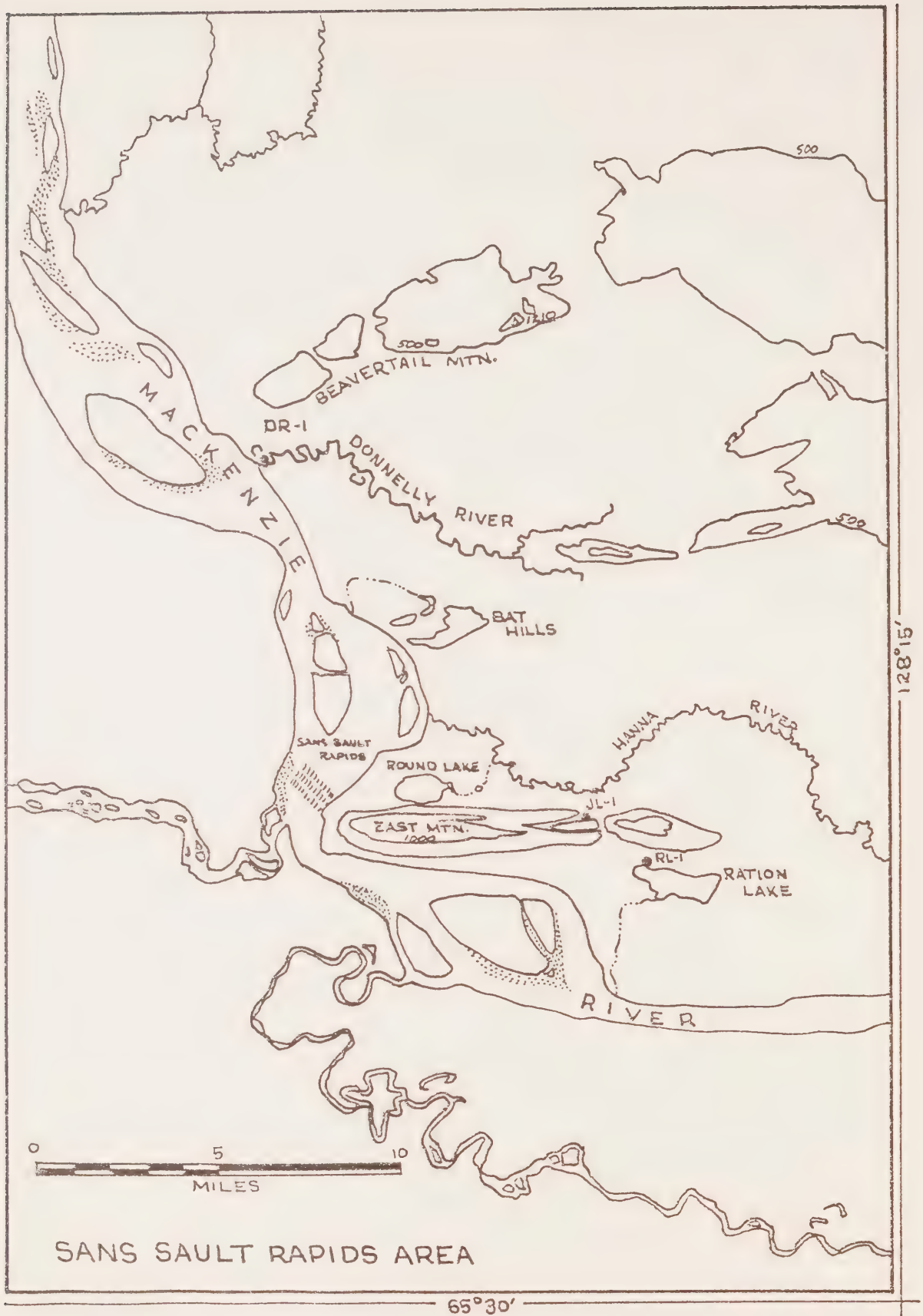


Fig. B16.

SITE: DR-1

LOCATION: Donnelly River 65°49'20"N 128°51'00"W.

ASSEMBLAGE:

Tree-fall Hearth Contents

Artifacts (N.A.)

Faunal Remains

Castor

1. Humerus, left distal fragment.
2. Humerus, left proximal, fragment.
3. Humerus, left proximal fragment (less epiphysis).
4. Humerus, left proximal epiphysis.
5. Radius, right med. shaft fragment.
6. Ulna, right med. shaft fragment.
7. Tibia, right distal fragment.
8. Tibia, left med. fragment.
9. Fibula, right(?) med. fragment.
10. Fibula, right distal fragment.
11. Metatarsal, distal fragment.
12. Phalanx, posterior.
13. Phalanx-1, posterior less proximal end.
14. Phalanx-1, posterior less proximal epiphysis.
15. Phalanx-2, posterior(?).
16. Phalanx, med. fragment.
17. Phalanx-1.
18. Phalanges, anterior(?), three pieces.
19. Maxilla, left and right fragments, eight pieces.
20. Temporal, left zygomatic process.
21. Zygoma, right posterior fragment.

Pisces

22. Mandibles, fragments, five pieces.
23. Teeth, five pieces.
24. Crania, fragments, four pieces.
25. Rib, fragments, ten pieces.
26. Centrum.

Fort Good Hope Area

Situated on the right bank of Mackenzie River at mile 682 is Fort Good Hope $66^{\circ}15'30''\text{N}$, $128^{\circ}38'\text{W}$. The settlement was moved to its present location on the edge of the Canadian Shield in 1836 from Manitou Island directly west from the modern community. Hare Indian River enters from the east and joins the Mackenzie 2.6 miles downstream from Fort Good Hope. An extensive esker complex extends eastward from the Mackenzie immediately north of the settlement for a distance of one mile inland. In places the esker ridge rises to over 200 feet and has been quarried for gravel used in the town. The balance of the surrounding terrain is the relatively flat Anderson Plain which stands at approximately 300 feet A.S.L. in the Fort Good Hope region. The plain is dotted with many small lakes, the largest of which is Ontadek Lake (known locally as Jackfish Lake) located 5.5 miles due east of the Hare Indian/Mackenzie River confluence (Fig. B-17).

Several transects inland were made southeast from Jackfish Creek, a small tributary entering the Mackenzie immediately upstream from the settlement. Reconnaissance and testing was focused on the numerous low ridges and occasional dunes which form the only topographic relief on the otherwise flat ground moraine. A total of 18 one-meter test squares were excavated in the area in four different localities. No archaeological material was recovered either in the testing or from the numerous natural exposures examined.

Reconnaissance north and east from Fort Good Hope was largely confined to the previously mentioned esker complex and to the northwest shoreline of Ontadek (Jackfish) Lake. A large portion of the esker complex is traversed by a well established bush trail along which the remains of numerous contemporary camps of native origin were observed. Natural exposures along the tops and flanks of the esker ridges were examined and a total of six one-meter test squares were excavated between two lakes which flank the main ridge near its eastern termination. No archaeological material was recovered.

Penetration and survey along the eskers to the north arm of Ontadek Lake was accomplished via recent cut-lines leading northeast from the settlement. The distance to the lake is 7.4 miles straight-line but nearly one

mile further by existing cut-line trails. Approximately 1.5 miles of the shoreline along the north arm of the lake was examined and tested.

Reconnaissance in the vicinity of the north arm of Ontadek Lake was successful in locating the remains of one archaeological site designated GH-1 (Fig. B-18). The location of the site is 7.4 miles N 30°E of Fort Good Hope on a cut-line extending along the summit of a small north/south trending esker which slopes steeply southward and terminates at the shore of the lake. Situated at ca. 100 feet A.S.L., the site is contained within the upper 2-3 cm of colluvium derived from the esker immediately upslope from the deposit. The esker itself grades from coarse sand and gravel to fine sand and silt deltaic-like deposit where it terminates at the lakeshore. The cultural material rests directly upon this sand/silt unit at the interface of the A-h and B horizons. The profile exhibits a weak Ae horizon and a strong Bf horizon. The soil type would probably be classified as a regosol.

Initial surface collecting resulted in the recovery of five flakes of chert, ignimbrite, and argillaceous shale; three utilized chert flakes; a large retouched banded grey chert flake; an iron awl; and 31 pieces of burned and calcined bone, none of which could be identified.

Test excavation consisted of three, one by two meter squares placed at three meter intervals which yielded a white seed bead and a small rolled copper cylinder; a fragment of cut antler 73 mm long and tapering from 9 mm to 15 mm; 87 flakes of various fragments, nine of which are identifiable as bird, beaver and possibly caribou (Fig. B-19). Fragments of fire-cracked rock recovered in association with the faunal material is estimated at 10-15 pounds.

The total area of the site extends over no more than 10 M by 5.0 M along the crest of the esker. The component appears to be the result of a single occupation apparently originating in the Early Contact Period. The white seed bead and the rolled copper cylinder or "tinkler" form the basis for this conclusion. There may be a demonstrable temporal connection between site GH-1 and one of the earlier Fort Good Hope trading establishments in the area.

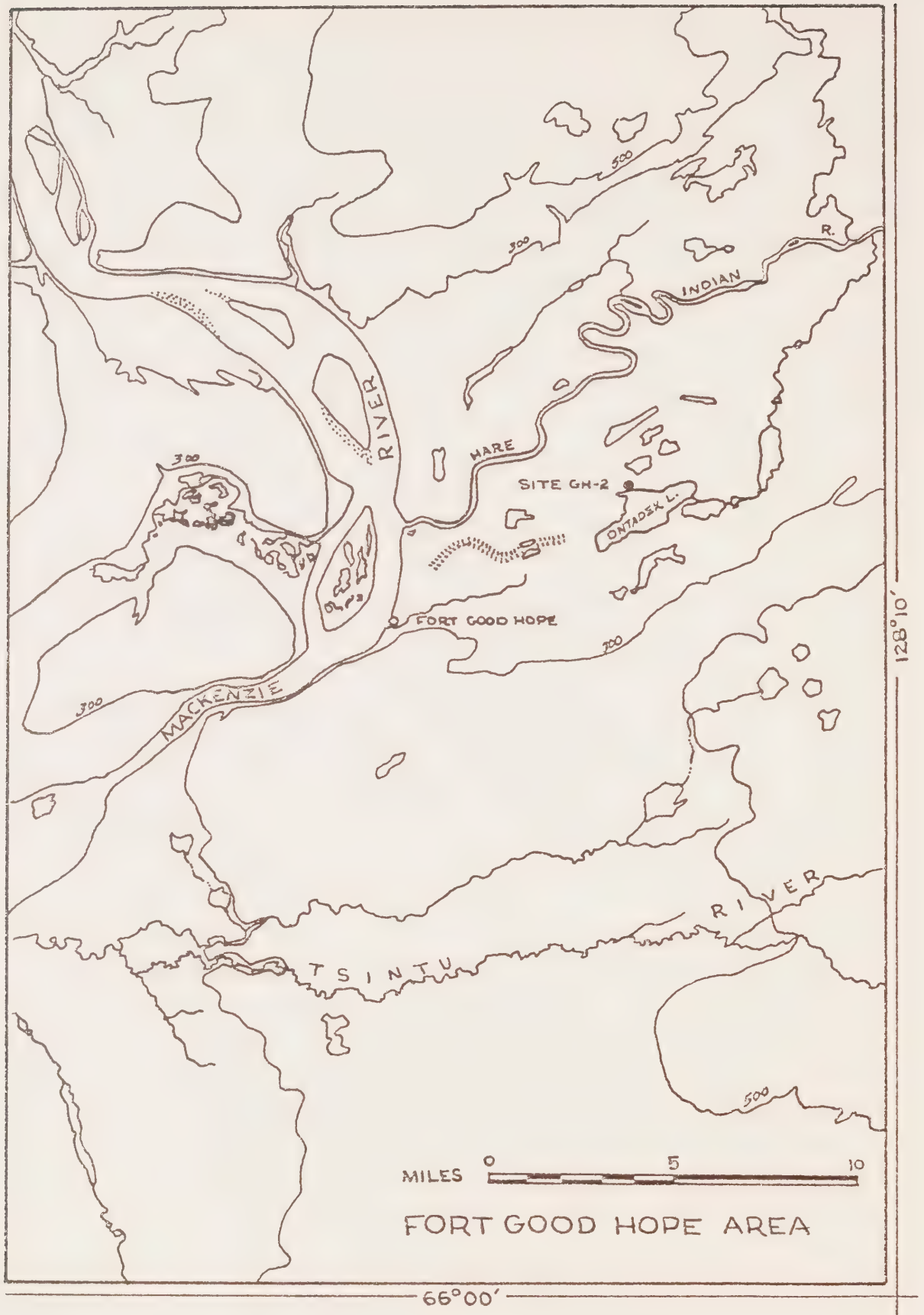


Fig. B17.

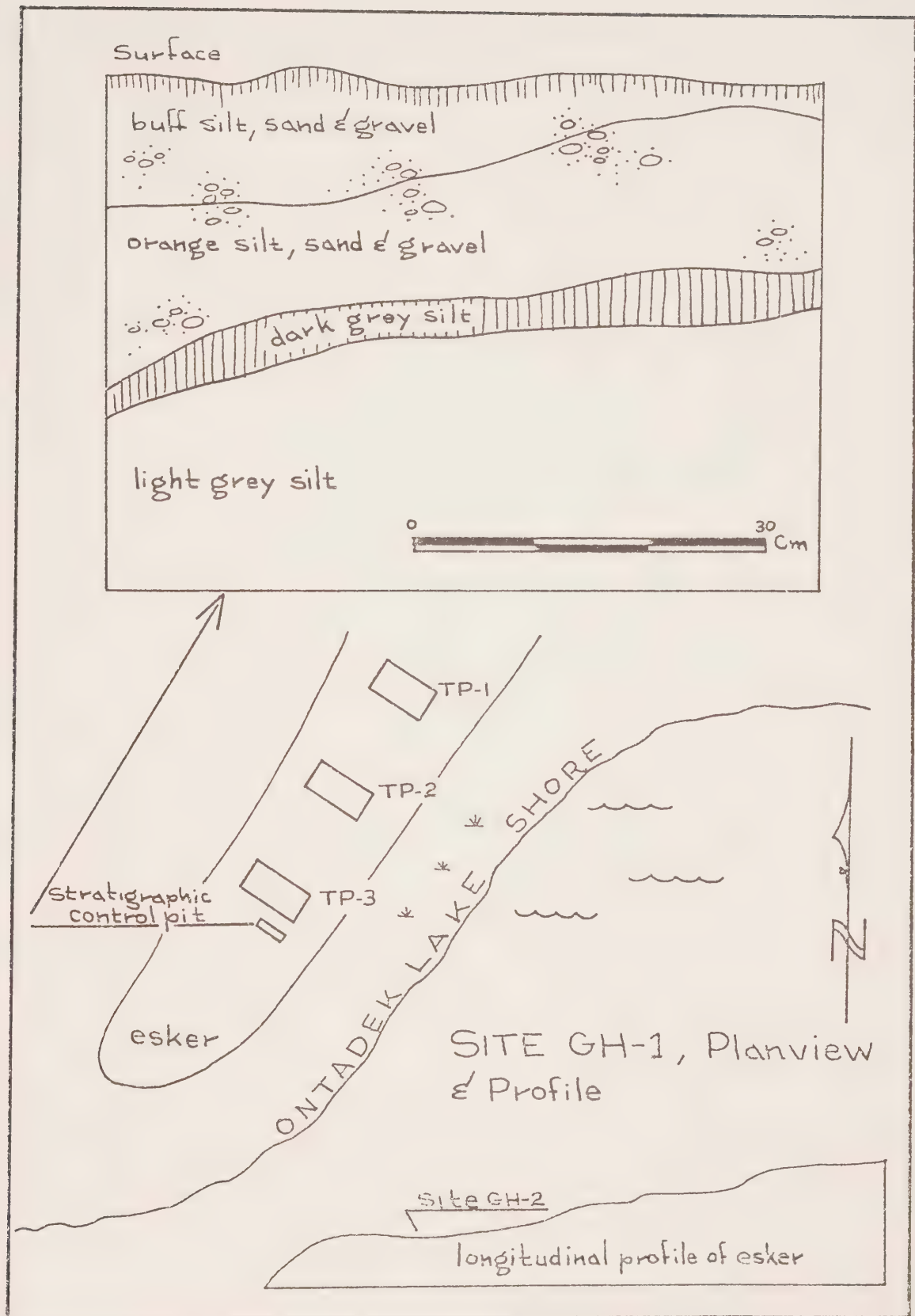


Fig. B18.

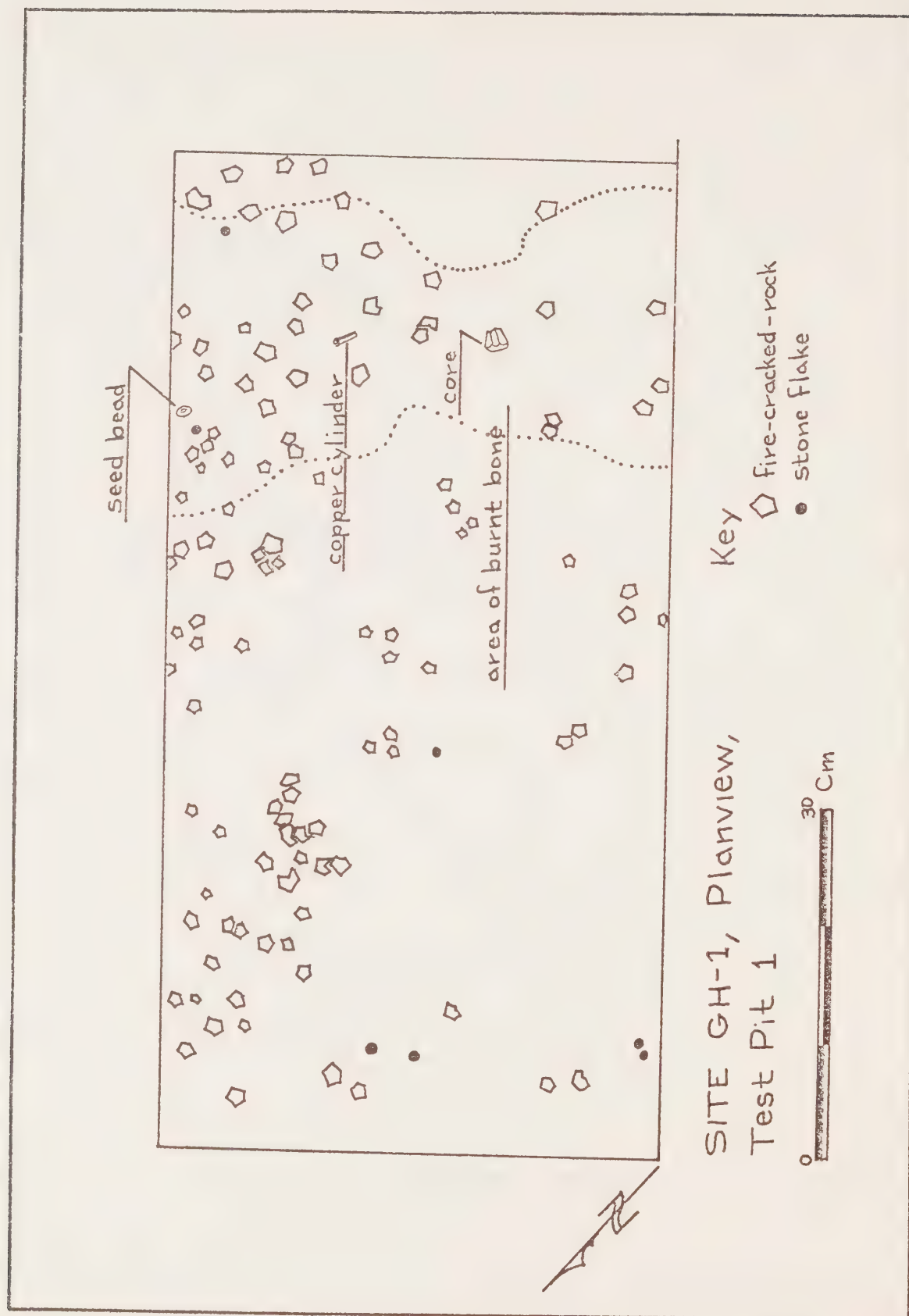


Fig. B19.

SITE: GH-1

LOCATION: Ontadek Lake 68°18'20"N 128°24'30"W

ASSEMBLAGE:

Surface

Artifacts

1. Flake, retouched. Medium-grey banded chert 90mm X 47mm X 13mm with a striking platform 25mm X 6mm at center.
2. Awl, iron. Rectangular cross-section tapering to rounded chisel-like edge. 95mm X 13mm X 5mm.
3. Flake, utilized, white chert. Use-wear occurring on one edge of ventral side. 28mm X 29mm X 8mm.
4. Flake, utilized, black chert. One side backed by cortex opposite edge showing use-wear. 39mm X 19mm X 6mm.
5. Flake, utilized, black chert. Use-wear on one edge only, 9mm long. 20mm X 7mm X 5mm.
6. Flakes, grey chert, two pieces.
7. Flake, ignimbrite, off-white.
8. Flakes, argillitic shale, grey-brown. Two pieces.

Faunal Remains

1. Bone fragments, burned, 31 pieces (unidentifiable).

Test Pit #1

Artifacts

9. Bead, seed, white. 9mm diameter.
10. Bead, copper, rolled and tapered. 18mm X 5.2mm dia.
11. Core, single platform, white chert. 60mm X 31mm X 21mm.
12. Flake, fossiliferous grey chert.
13. Flake, dark red jasper (chert).
14. Flakes, dark grey chalcedony, two pieces.
15. Flakes, medium grey chert, three pieces.
16. Detritus, medium grey chert, two pieces.

Faunal Remains

Aves

2. Metacarpals, 3-4, left proximal end.
3. Ulna, left proximal end.
4. Humerus, left proximal end.
5. Keel (rib facets), two pieces.
6. Ulna, left distal end.
7. Femur, right(?), shaft fragment.
8. Coracoid, right proximal end.

Castor (?)

9. Phalanx, second.

Miscellaneous

10. Bone shaft, fragments (small mammal), burned.
11. Rib fragments (small mammal), burned.
12. Rib fragments (small mammal), calcined.
13. Unidentifiable fragments.
14. Fire-cracked rock 10-15 pounds (estimated).

Test Pit #2 (east $\frac{1}{2}$)

Artifacts

17. Antler, splinter, 73mm X 5mm tapering 15mm to 9mm. All edges show evidence of cutting or graving.
18. Biface, edge fragment, dark grey chalcedony. 29mm X 15mm X 4mm.
19. Flake, utilized, dark grey chalcedony. Use-wear occurs along one lateral edge. 20mm X 20mm X 5mm.
20. Flake, biface trimming, argillitic shale. 35mm X 24mm X 8mm.
21. Flakes, dark grey chalcedony, 17 pieces. Predominantly pressure flakes averaging ca. 5mm X 10mm.
22. Flakes, purple-grey argillite, 17 pieces. Predominantly wide, spatulate trimming flakes with wide over-hanging bulb.
23. Detritus, dark grey chalcedony, 31 pieces.
24. Detritus, purple-grey argillite, 50 pieces.

Miscellaneous

25. Fossil coral, single "Rugosa" type, 73mm X 15mm tapering to 10mm diameter.

Test Pit #2 (west $\frac{1}{2}$)

Artifacts

26. Flake, platform rejuvenation, dark grey chalcedony. 30mm X 22mm X 10mm.
27. Flake, dark grey chalcedony, large bulb. 19mm X 21mm X 4mm.
28. Flake, pressure, purple-grey argillite. 5mm X 8mm.
29. Flakes, black argillite, eight pieces.
30. Flakes, pressure, dark grey chalcedony, 30 pieces.
31. Flakes, white chert, three pieces. Less than 1 cm.
32. Flakes, grey banded chert, two pieces.
33. Detritus, black argillite, 11 pieces.
34. Detritus, dark grey chalcedony, 66 pieces.
35. Detritus, grey brown chalcedony, three pieces.

Faunal Remains

15. Unidentifiable bone fragments, fifteen pieces.

Lake Survey Phase

Rorey Lake

The first stop of the fall season was at the south end of Rorey Lake near the entrance of Loon River some 40 air miles northeast of Fort Good Hope at 66°50'N 128°30'W. The lake is bordered on the west by a low limestone ridge or escarpment which rises approximately 700 feet above the mean lake level. To the east, the land rises gently to ca. 600 feet A.S.L. where Bluefish River, a tributary of the Hare Indian River, is encountered. The outlet of Rorey Lake is located in the extreme southwest portion of the lake connecting a series of small muskeg lakes forming the Loon River drainage which ultimately joins with the Mackenzie (Fig. B-20).

The vegetation in the immediate area of southern Rorey Lake is an uncomplicated spruce/larch muskeg community with occasional birch and willow stands. Many areas along the shoreline are shallow and sedge filled. Considerable peat has developed in the spruce forest which overlies a clay/silt substrate along the 3.5 miles of shoreline surveyed. Two and one-half days were spent operating from a field base camp established one-quarter mile north of the Rorey Lake outlet.

A total of five large native fishing camps were observed which collectively possessed the following types of traits and structures: one or more tent sites with or without log wall frames; meat and fish drying racks; triangular cache platforms; wood chopping areas; and occasional tepee-like structures for meat drying and hide smoking. Canoe paddles, net floats, and several other kinds of wooden artifacts were observed in various areas along the shore amongst other natural flotsam.

The majority of tent sites observed indicated the use of the common five gallon drum stove supported by two horizontal logs or four short pegs driven into the ground. Dog-tie areas and occasional spruce shelters for the dogs were also encountered.

Characteristically, the recent native camps are surrounded by a more-or-less semi-circular clearing which results from cutting spruce for camp construction and fuel. The net result of the cutting besides the obvious

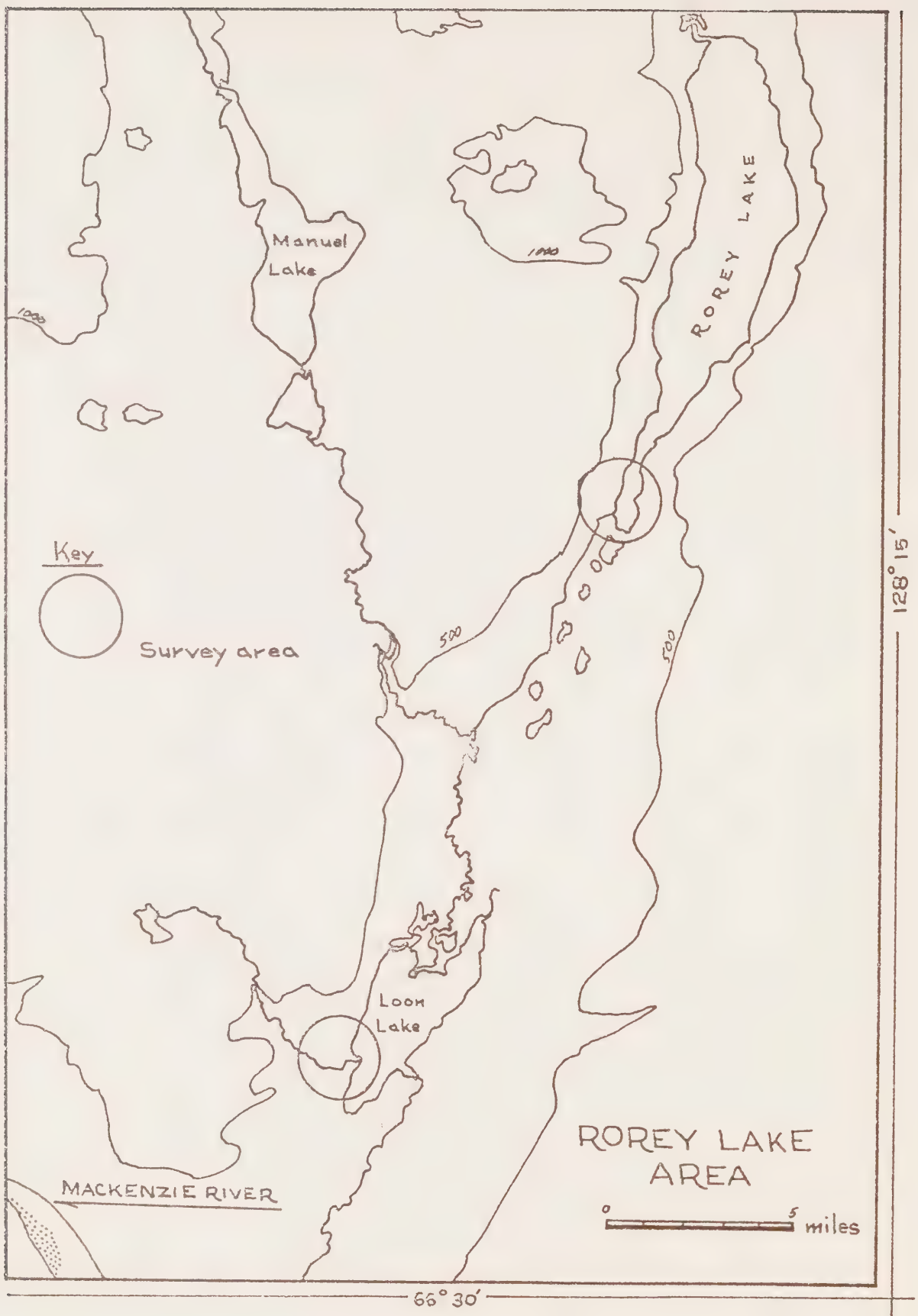


Fig. B20.

clearing is the subsequent thermokarst disturbance which has marked effects on the appearance of the formerly inhabited area. The ground surface in all formerly inhabited areas observed was hummocky and difficult to traverse owing to permafrost damage due to tree removal. At least two older native camps which lacked any form of structural remains were identified on the basis of this micro-topographic characteristic alone. With one exception, all of the camps originate from late fall/early winter activities.

In the absence of active shoreline or erosional exposures, testing along the Rorey Lake shoreline was conducted adjacent to locations which evidence **recent** native activity. In all cases, the profiles exposed were uniform consisting of 30-60 cm peat, moss, and forest litter underlain by a clay/silt substrate containing a few pebbles. Permafrost was encountered 50-100 cm from surface in the areas tested. No archaeological remains were recovered from any of the exploratory excavations.

Loon Lake

Loon Lake was visited only briefly as deteriorating weather conditions forced curtailment of survey activities in the Fort Good Hope area. The geographical situation surrounding Loon Lake is similar to that described for Rorey Lake. Both water bodies are components of the same Loon River drainage regime (Fig. B-20).

Survey was located in the south-central region of the western shoreline where a small stream enters from the northwest and breaches a prominent point of land which extends one-quarter mile into the lake. Approximately one mile of shoreline was quickly reconnoitered and testing conducted at intervals along the way. Profiles examined revealed 30-60 cm of peat and needle litter which is underlain by a sandy to gravelly alluvial or outwash deposit.

Four log-framed tent sites were observed in the spruce forest one-half mile north of the stream inlet just a few yards from the lake shore. Testing in the area recovered two pieces of fire-cracked rock 3-5 cm below surface but no other artifacts. One test site contained a four peg stove support and all four had floors of spruce boughs. No additional material was recovered from the mile-long shoreline examination.

Turton Lake

Turton Lake is located approximately 40 air-miles N.N.W. of Norman Wells, Northwest Territories in a large glaciated rift valley trending north-west. It is the northern-most of large narrow lakes which occupy the 63 mile long mountain valley. Turton Lake is two miles wide and ten miles long with relatively narrow shorelines and steep valley walls on either side. The lake inlet is located at the north end and was the focus of a two day shoreline reconnaissance (Fig. B-21). Temporary field base camp was established on the west bank of a small tributary stream which enters Turton Lake from the adjacent hills one mile south of the outlet at $65^{\circ}53'N$ $127^{\circ}00'W$. Two and one-half miles of shoreline was surveyed both north and south from the base camp.

Testing was carried out at three localities which were the only ones which appeared to have any archaeological potential. Elsewhere, the shoreline rises steeply from the lake shore. These areas of potential include the northern inlet, the mouth of the tributary stream, and 1.25 miles south of base camp in the delta region of a large stream entering from the south. Profiles both at the stream outlet and the lake outlet showed evidence of very little soil development (2-3 cm) over the limestone colluvium which forms the soil parent material. Moss and needle litter varies from 10-20 cm at both localities. The angular to rounded limestone aggregate which forms the substrate observed here and elsewhere is suggestive of a glacial moraine origin which is consistent with the geomorphology of the valley itself.

Exploratory excavation at the third locality near the outlet of a large stream revealed a profile consisting of a variously colored fine silt overlain by 10-30 cm of peat, moss, and needle litter. Bright orange oxidized lenses in the silt unit suggest forest burning sometime in the past.

No archaeological sites or remains of recent native activities on Turton Lake were observed, thereby weakening to some extent, the general notion that sites of both historic and prehistoric origin tend to cluster at the inlets and outlets of these large inland lakes. Brief air reconnaissance of the area surrounding the southern outlet gave a similar impression. It is tentatively concluded that for reasons presently unknown, little if any native activity has occurred on the lake in the recent past.

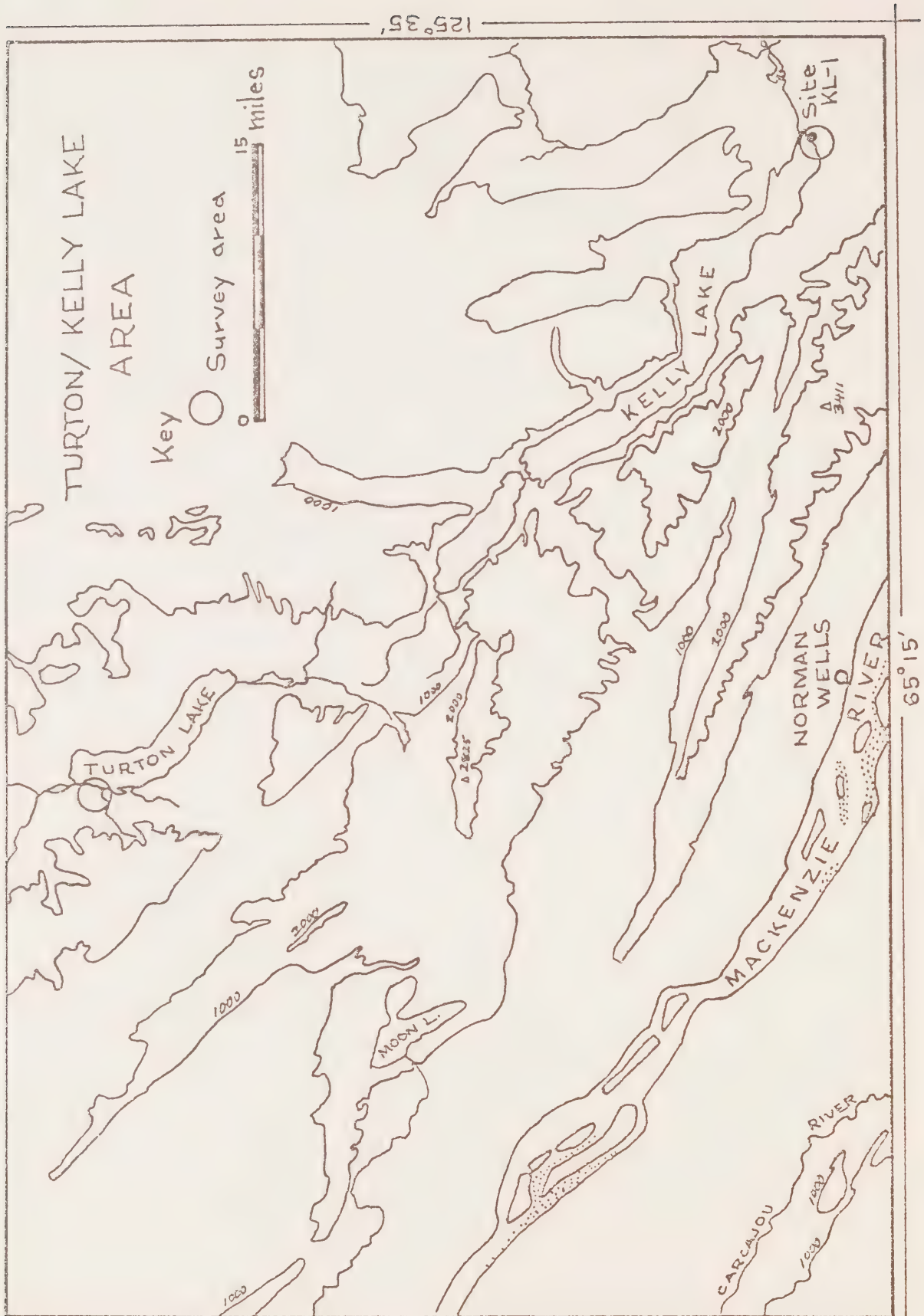


Fig. B21.

Kelly Lake

Only a brief stop was possible on Kelly Lake during which 1.5 miles of the southern shoreline south of the lake outlet was examined (Fig. B-21). One day and one night was spent adjacent to a large fishing camp organized by Band Chief, Paul Baton immediately south of the outlet. Three other families, also from Fort Norman, were present at the camp which had been in operation since about mid-September and would continue through until Christmas.

Reconnaissance along the shoreline revealed remains of several late fall/early winter fishing camps similar to the Baton camp at the outlet. Exposures along the active beach of a former beach deposit or bench were carefully examined for artifactual material over the entire 1.5 miles surveyed. Although the presence of the raised beach seemed to present good potential for site preservation, very little material was recovered.

Several tiny bits of calcined bone and a small fragment of white ignimbrite detritus were observed in the root ball of a recently overturned spruce tree on a presently eroding section of beach, one-half mile from the outlet. Subsequent examination, however, yielded no additional material. Time was not available for testing of the site, designated KL-1.

Fish Lake

Fish Lake lies approximately 26 miles E.S.E. of the settlement of Wrigley, Northwest Territories and ca. 14 miles due east of Mackenzie River at $63^{\circ}11'N$ $122^{\circ}35'W$. Regional elevation in the vicinity of the lake is ca. 1,000 feet A.S.L. or some 600 feet above that of Mackenzie River (Fig. B-22). The McConnell Range of the Franklin Mountains separates the Great Slave Plain from the Mackenzie Lowlands and hence, Fish Lake from the Mackenzie Valley. Drainage from the lake, however, is through the west arm via River Between Two Mountains which breaches the McConnell Range to enter the Mackenzie system. Local relief in the region is slightly over 800 feet.

Reconnaissance of Fish Lake was limited by both time and weather to eleven miles of shoreline in the west arm. A field base camp was established on the west shore in the arm and archaeological survey was accomplished by canoe over a three day period. Although the entire eleven miles of shoreline was observed, stops for detailed examination and/or testing were limited to stream mouths, points or promontories, and well defined depositional beaches both active and fossil.

Several recent native activity areas were observed which appear to represent a considerable time-span but all undoubtedly within this century. A recent trapping cabin was observed on the north bank of the passage which connects the east and west arms of the lake.

Other interesting features of recent origin are deadfalls, lynx traps, and a canoe vault built of logs and having a flat, pole roof. A large cache of "rat" and freight canoes was observed at the juncture of a recent cut-line and the lake shore 2.5 miles from the outlet on the western shoreline.

Two sites of prehistoric origin were located on the shoreline in the west arm of Fish Lake. The first site, designated FL-1, was recognized through the recovery of a small flake of white ignimbrite and three bone fragments from the active beach zone near the mouth of a small stream 3.8 miles north of the lake outlet. The immediate area was carefully examined and limited testing undertaken but the origin of the artifacts could not be ascertained.

The second site, FL-2, is exposed in the active shore-zone of a small pocket beach which lies on the east shore between a conspicuous, eroding esker and a high promontory to the north. The material consists of a large

quartzite uniface, a basalt biface, and a retouched(?) pebble spall. Several fragments of partially mineralized caribou bone and one canid (?) fragment were also recovered. All of the material derives from the base of a bench or terrace of uncertain origin beneath approximately six feet of clean, coarse sand. The stone artifacts are water-worn but the faunal remains do not appear so. Nevertheless, their stratigraphic association seems clear. The depth of burial of the material coupled with the partially mineralized condition of the bone remains may indicate considerable antiquity for the site.

SITE: FL-1

LOCATION: Fish Lake 63°09'00"N 122°51'00"W.

ASSEMBLAGE:

Surface

Artifacts

1. Flake, ignimbrite, white with small, salient bulb of percussion and two intersecting flake scars on dorsal surface. 11mm X 12mm X 2mm.

Faunal Remains

1. Sacrum, left anterior, inferior fragment of articulated body (large mammal).
2. Inominate (?) fragment (large mammal).
3. Bone, fragment (unidentifiable), partly calcined.

SITE: FL-2

LOCATION: Fish Lake 63°08'00"N 122°47'30"W.

ASSEMBLAGE:

Surface

Artifacts

1. Biface, large, basalt or other ferro-magnesium material. 136mm X 87mm X 40mm thick.
2. Uniface, large, quartzite brown, 151mm X 86mm X 35mm.
3. Pebble spall, retouched(?), 53mm X 44mm X 22mm thick.

Faunal Remains

Rangifer

1. Metatarsal, left, sub-adult.
2. Femur, right distal end.
3. Tibia, left proximal fragment.
4. Tibia, right proximal shaft fragment.
5. Radius, right distal fragment.
6. Metatarsal, right proximal lateral fragment. (Cutmarks).
7. Tibia, right proximal anterior fragment.
8. Calcaneus, right.
9. Metatarsal, med. shaft fragment. (Immature).
10. Rib, shaft, two pieces (cut-marks).
11. Rib, shaft with head, two pieces (cut-marks).
12. Metatarsal, right(?) med. posterior shaft fragment.
13. Metatarsal, (?) distal condyle.
14. Radius, left proximal fragment.
15. Mandible, left (immature).

Canidae (?)

17. Tibia, right shaft fragment.

Miscellaneous

18. Bone, fragments (unidentifiable), large mammal.

Historic Sites

Rocky Mountain Fort (1800-1804?)

The site of Rocky Mountain Fort (KbRj-2, $62^{\circ}15'N$ $123^{\circ}18'W$) was tentatively relocated in the vicinity of Camsell Bend, immediately east of Cameron Point (mile 263) and opposite the east channel of the North Nahanni River (Fig. B-23). The site occupies a partial clearing on the river bank, approximately 20 feet above the Mackenzie River. The terrain rises sharply from the northern perimeter of the site to reach a total elevation of 1,000 feet A.S.L. some two miles inland.

There are references to Rocky Mountain Fort in the ethnohistorical literature as well as in later documentary material (see Wentzel, 1822: 562-563, Voorhis, 1930: 150). Ethnohistorical research prior to the archaeological survey enabled the probable location of the site to be established. This research, in conjunction with the previously discussed vegetation change, resulted in the relocation of the site and the discovery of several surface features.

Observation of surface features indicates the archaeological remains of three cabins, designated as structures A, B, and C. They are arranged in a relatively straight line which trends from 117° to 120° east of true north. Structure A consists of the wall outlines of a 4.5 M X 7.5 M (14.8 X 24.6 ft.) building containing two storage cellar depressions, in addition to chimney remains in the northwest corner. Structure B measures 5.5 M X 6.5 M (18.0 X 21.3 ft.) as delineated by wall outlines. These wall outlines appear as low linear mounds. Structure B also possesses two storage cellar depressions and a chimney pile located along the north wall. Structure C is the most westerly of the three and is 5.3 M X 8.8 M (17.4 X 28.9 ft.) in plan. Two rectilinear storage cellar depressions are the only visible surface features within the wall outlines. No apparent chimney remains at this building would indicate that it was not heated. It is possible that this structure (C) may represent the trading house when one considers that unheated trading houses have been characteristic of various companies even up to modern times.

These three structures have been tentatively assigned to the 1800-1804(?) occupation of the site and are thought to be the remains of Rocky

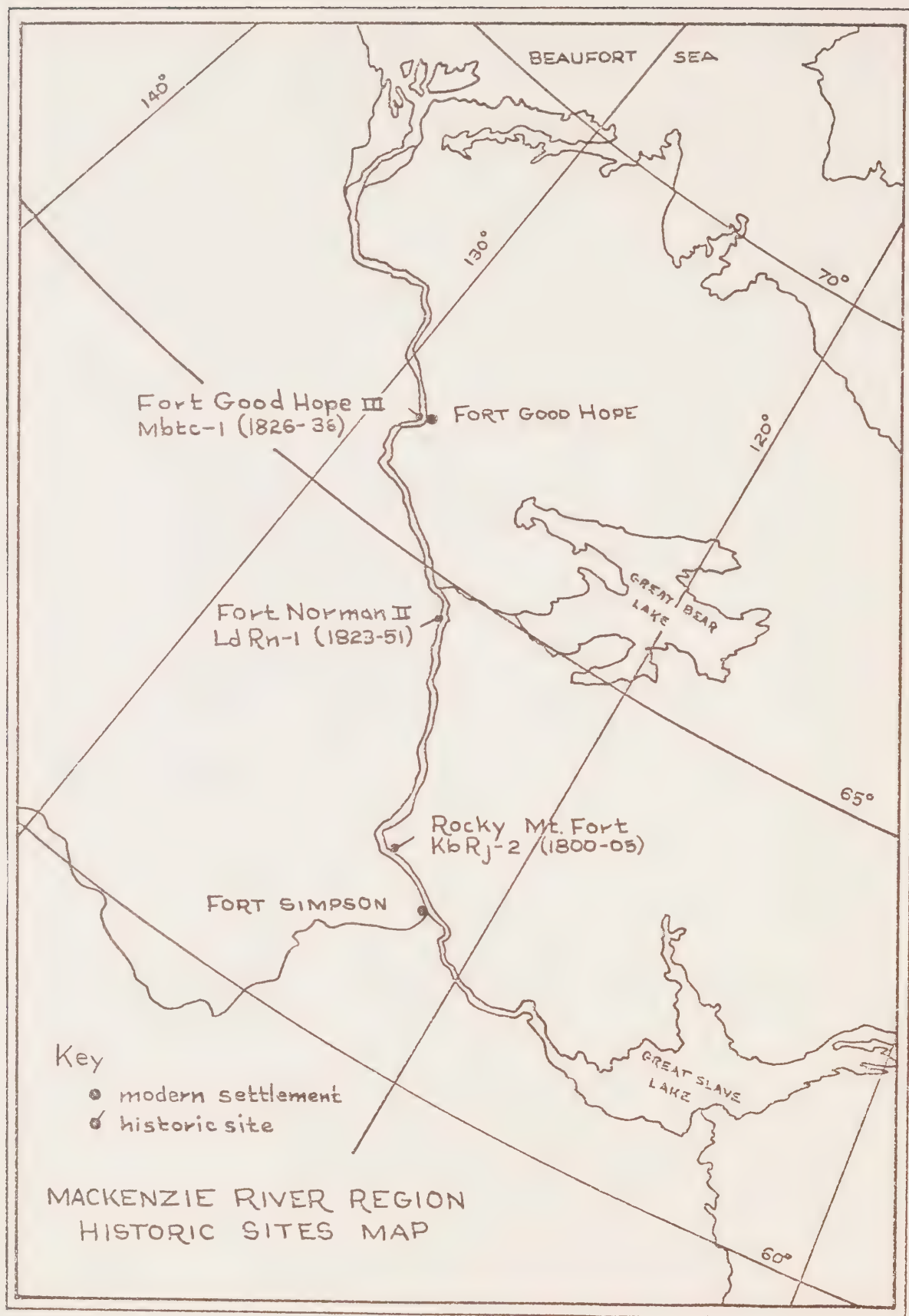


Fig. B23.

Mountain Fort. Two additional features, perhaps also having their origin during this period, require comment. The first of these is a large refuse pile approximately three meters in diameter and 60 cm in height. It is situated immediately S.W. of Structure C. The second feature, the purpose of which is presently unknown, consists of a line of stones lying between Structures A and B. This feature parallels the orientation of the buildings and is 8.5 M (28.3 ft.) in length.

Associated with the site of Rocky Mountain Fort are the remains of two recent log cabins. These remains are attributed to a trading establishment which operated in the same location from 1930-1935 (Usher, 1971: 60). There is considerable refuse associated with this recent establishment covering the general site area. One artifact was found protruding from the chimney pile of Structure A and was identified as the barrel of a fowling piece. It is burst at the muzzle and has a percussion patent breech. No manufacturer's marks are discernable due to heavy corrosion.

Fort Good Hope III (1826-1836)

The remains of Fort Good Hope III (MbTc-2, 66°16'N 128°40'W) were tentatively relocated on the east bank of Manitou Island. This island, located opposite the present day community of Fort Good Hope (mile 682), is approximately 3½ miles long and 1 1/3 miles wide (Fig. B-23). It is the southernmost of a series of three islands and extends from the mouth of Hare Indian River in the north to a point just below the settlement of Fort Good Hope in the south. The surface of Manitou Island is marked by a network of sloughs, ponds, and lakes.

The most complete reference concerning the destruction of Fort Good Hope III is to be found in Thomas Simpson's *Narrative of the Discoveries on the North Coast of America* (1843). This reference also provides information as to the fort's location.

A total of nine surface features located on a recently flooded topographic rise were tested, tentatively identified and mapped. Of nine features, five were collapsed stone chimneys and two were storage cellar depressions. The remaining two features consisted of intersecting linear mounds, possibly representing the wall outlines of two separate structures. In both instances, the wall outlines were incomplete and only represented two sides of each possible structure. The tentative nature of these field observations does not allow a discussion of structural dimensions.

Discussion of the stratigraphic profile of one of the test units provides a point of reference for both a discussion of the artifactual material and the archaeological potential of the site.

At a depth of 40 cm below the surface no evidence of an occupation level was encountered. This was due to a thick, sterile silt unit believed to be the result of the documented spring flood responsible for the 1836 abandonment. In addition, it is assumed that subsequent flooding after this date has contributed significantly to the depth of the overburden. A solid stratum of chimney rock, fired and unfired chinking and bone fragments was encountered at 52 cm below the surface. Bone exhibited a remarkable state of preservation, still retaining its original surface. Below this stratum, at a depth of 66 cm, a

layer of spruce bark and axe chips was uncovered. This layer is tentatively thought to be the result of original construction activities at the site. Beneath this the remains of two squared timbers were found at a depth of 85 cm. Cultural material from this test unit includes cut birch bark, clay chinking, a corroded iron shaft and unidentifiable burned and unburned bone fragments.

One of the most noteworthy aspects of Fort Good Hope III at present is the excellent state of preservation characterizing the material remains. Good preservation of the organic and inorganic remains is partly attributable to the substantial silt "cap" deposited during the 1836 flood, as well as by subsequent floods.

Fort Norman II (1823-1851)

The original site of Fort Norman II (LdRn-1, 64°39'N 124°55'W) was tentatively relocated on the southeast bank of Old Fort Point (mile 552), about 34 miles upstream from the present community of Fort Norman (Fig. B-23). The banks at the upstream end of Old Fort Point have undergone considerable erosion in the recent past. This may be seen in the deposition of a gravel shoal $1\frac{1}{2}$ miles long a short distance downstream from the site. In addition, evidence of ice-rafting over the 20-30 foot high bank is readily apparent.

A low altitude aerial reconnaissance over the southeast portion of Old Fort Point indicated a vegetation zone about $\frac{1}{4}$ mile long and 100 yards wide composed of willow, alder, and poplar in the midst of a solid White Spruce forest. Further investigation revealed the presence of a slough about 20 X 300 feet on the southern limit of the poplar and willow area. This slough trends northeast/southwest and has an intermittent drainage over the high banks of the Mackenzie. Its point of exit into the Mackenzie drainage is marked by an active slump area in the approximate center of the vegetation zone previously mentioned. Walking N. 45° W. (compass direction) from this point for a distance of about 80 feet one encounters a slight topographic rise only two to three feet above the surrounding terrace. The surface features representing Fort Norman II are located on this rise.

Ethnohistorical references to Fort Norman II are somewhat limited and confusing, yet they do allow tentative identification of the site (see Ogilvie, 1890:72, Simpson, 1843:95).

The ethnohistorical data received invaluable clarification by Paul Baton, Band Chief of Fort Norman. During a visit to his fishing camp, he indicated the exact location of Fort Norman II on a 1:50,000 scale topographic map of the area.

Surface features consisted of two storage cellar depressions and two stone chimney piles. The most southerly of the two cellar depressions is noteworthy in terms of its size. Despite the accumulated debris of over one hundred years, a recognizable depression about 115 cm deep is still visible.

Additional evidence of cultural activity was also observed in the eroded banks of the Mackenzie River, about 85 feet southeast of the surface

features just described. Two strata containing fragments of bone (unidentifiable, except for moose), fired chinking or mortar, a clay pipe stem and glass fragments were observed. These strata appear to represent two separate cultural deposits of historic origin and were tentatively designated as Stratum I and Stratum II. The surface of the eroded river bank was examined and surface collection was made for a distance of 150 feet southward from the outlet of the slough. The surface material included butchered and unbutchered faunal material (moose, caribou, beaver, and dog?), a clay pipe stem, fired chinking and a strip of copper.

While the architectural surface features situated inland appear to be undisturbed, it is apparent from our field observations that the portion of the site located on the river bank has been severely damaged by ice rafting and scouring. It is more than likely that all traces of habitation from this area of the site will soon be removed.

SITE: MbTc-2 (Fort Good Hope III)

LOCATION: Manitou Island $66^{\circ}16'00''\text{N}$ $128^{\circ}40'00''\text{W}$.

ASSEMBLAGE:

Surface

Artifacts

1. Birch bark, cut rectangular 30mm X 50mm.
2. Shaft, iron, 110mm X 15mm dia. (badly corroded).
3. Ax-chips, wood, three pieces.
4. Chinking, clay, fired, five pieces with grass impressions.

Faunal Remains

1. Bone, fragment (unidentifiable), ten pieces.
2. Bone, fragments, burned (unidentifiable), three pieces.

SITE: KbRj-2 (Rocky Mountain Fort)

LOCATION: $62^{\circ}15'00''\text{N}$ $123^{\circ}18'00''\text{W}$ Cameron Point.

ASSEMBLAGE:

Surface

Artifacts

1. Barrel, fowling piece. Percussion patent breech type with broken tang. Part round, part octagonal barrel; the latter portion extends 180mm from breech. Has two barrel lugs placed 141mm and 528mm from breech. Barrel is burst at muzzle 586mm from breech. No proof or manufacturers marks are visible. Ca. 16 guage or .69 cal.

SITE: LdRn-1 (Fort Norman II).

LOCATION: Old Fort Point 64°39'00"N 124°55'00"W.

ASSEMBLAGE:

Surface

Artifacts

1. Pipestem, kaolin 52mm X 7.5mm dia.
2. Strip, copper 15mm X 85mm X .025 in. thick.
3. Chinking, clay, fired showing striae and plastered surface.

Faunal Remains

Alces

1. Maxilla, left fragment with Pm2-3 and M1.
2. Humerus, left distal end.
3. Humerus, left (?) med. shaft fragment.
4. Tarsal 2-3, right (cut-marks).
5. Shaft fragments (gnawed).
6. Metacarpal, left lateral proximal fragment.

Rangifer

7. Radius, left proximal end.
8. Scapula, left med. fragment, (gnawed).
9. Metatarsal, left lateral shaft fragment.

Castor

10. Femur, right, sub-adult (missing epiphysis).
11. Humerus, left sub-adult (missing epiphysis).

Canidae

12. Canine tooth, upper left.

Stratum I Exposure

Artifacts

4. Glass, clear green tint, fragment, .040 in. thick.
5. Pipestem, kaolin 18mm X 6mm dia.
6. Metacarpal or "splint-bone" (moose), distal end cut away.
7. Chinking, clay fired, four pieces.
8. Glass, clear green tint, fragments ca. .050 in. thick (5 pieces).
9. Scroll, birch bark with cut edges, 135mm X 250mm.
10. Bark, birch, irregular with cut edges 131mm X 70mm with perforations (3), 20mm apart.

Faunal Remains

13. Metatarsal, left proximal med. fragment.
14. Bone, fragments (unidentifiable), four pieces.

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Appendix C

OLD CHIEF (MjVk-7): AN EVALUATION

Jacques Cinq-Mars
Archaeological Survey of Canada
National Museum of Man

Introduction

The Old Chief site (MjVk-7), northern Yukon Territory, was discovered and first tested in 1970 by W.N. Irving and T. Hamilton, and the site was again briefly visited in 1972 (Cinq-Mars 1973: 40). On the latter occasion, the discovery of a possible microblade-bearing component forced us to reconsider the potential of the site, and it was felt that a more careful and extensive investigation was in order. This was carried out intermittently during the course of the last segment of the 1973-74 Mackenzie Corridor Preliminary Archaeological Project.

To date, little has been said in print about the major archaeological attributes of the Old Chief deposit. A brief description can be found in Morlan's (1973: 445) treatment of the prehistory of the middle Porcupine Basin, and an analysis of the faunal remains obtained from the 1970 test excavation has been completed by Stewart (1972). The present report, together with that found in the following Appendix (D), can be viewed as an attempt to present some of the major elements of the site's archaeological content as well as to discuss its possible place within the framework of the emerging cultural sequence of the Porcupine Basin.

Old Chief Terrace

A thorough description of the middle Porcupine environment, with special emphasis on the Old Crow-Porcupine region, has already been presented by Morlan (1973), and a brief description of the site area itself should be sufficient for this report.

Located in the midst of an increasingly large number of prehistoric localities, the Old Chief site lies along the edge of a high terrace (Fig. 1) of the Porcupine River at approximately 290 meters A.S.L. or 45 meters above the present river level. The terrace is actually part of an extensive ancient system located at the confluence of the Old Crow and Porcupine Rivers. The terrace segment which is of interest to us is that which overlooks the Porcupine River downstream or to the west of an intermittent tributary called the Old Chief Creek.

The terrace matrix consists primarily of a complex combination of silts, sands, and gravels and therefore is characterized, especially along the slope and edge of the terrace, by extremely well drained sediments. This drainage pattern and the southerly exposure of the terrace have resulted in a lowering of the permafrost table well below the lowest known archaeological deposits. These factors have also promoted a rather open vegetation cover mainly characterized by mature stands of white spruce interspersed with thickets of birch, alder, and willow and separated by extensive patches of smaller shrubs and grasses. These conditions obviously change as one moves away from the edge of the terrace onto

more level ground where drainage conditions and vegetation patterns are more consistent with that of the surrounding boreal forest (Fig. 2).

Soil development along the tested section of the terrace appears to be relatively shallow and seems to correspond to a variety of Eutric Brunisol (Canada Department of Agriculture 1970).

Old Chief Archaeological Deposit

On the basis of the work carried out thusfar, the archaeological deposit appears to extend along the edge of the terrace for more than 400 meters downstream from the Old Chief Creek and for approximately 75 meters, at a slightly lower elevation, along a minor right bank terrace of the creek. Discontinuous and barely diagnostic traces of archaeological material belonging to the prehistoric, transitional (contact) and early historic periods were also located in numerous places in the near vicinity of the main site area. Such traces were especially numerous below the site along the base of the terrace and upstream from the site on both sides of the upper gully of Old Chief Creek.

In addition to the numerous surface and buried components which have been observed along the main terrace, the site has yielded evidence of two and possibly three semi-subterranean housepits or depressions. These large ground features are all located within 75 meters of the terrace edge, downstream from the right bank of the Old Chief Creek. Most of the extensive testing and preliminary excavation undertaken by Irving and myself centers around one of these features, labelled housepit I or A, which is located at the corner of the terrace overlooking the Porcupine River through the Old Chief Creek opening (Fig. 3).

Irving's 1970 work consisted of tests in housepit I as well as in areas of the site located to the west and to the northeast of this feature along the Old Chief Creek portion of the terrace. In order to determine more precisely the stratigraphic and cultural relationships between housepit I and the surrounding portion of the deposit, it was decided in 1973 to test extensively the area immediately adjacent to housepit I as well as to undertake a preliminary excavation, paralleling Irving's initial test trenches, in the southern half of the house depression. Four excavation units were opened (Fig. 4):

North Unit. Located adjacent to the housepit, the southernmost margin of the north unit truncated a portion of the housepit's northern lip. A total of 11 square meters were excavated.

Central Pit Unit. This corresponds to the excavation of a portion of the southern half of the housepit, and it includes a segment of a trench cutting across the eastern lip of the depression. The area comprises 4.5 square meters.

Lip Unit. This unit consists of a trench, one meter wide, forming a right angle around the southwestern edge or lip of the house depression. Disregarding the balks, it covers 7 square meters.

South Unit. This trench, four meters long, is located south of the housepit and parallels the sloping edge of the terrace.

Other test pits consisted of a three meter trench located at the base of the slope, just below housepit II and approximately 30 meters west of housepit I, as well as a series of twenty 0.50 meter squares running parallel to the edge of the terrace to the west of housepit I.

Terrace Stratigraphy

The following stratigraphic description can be taken as a generalized presentation of the eastern portion of the main terrace stratigraphy, exclusive of the housepit zone in which the sediments were extensively disturbed by prehistoric cultural activity. It is based upon the various wall profiles which were observed in the North, Lip, and South units as well as in the other trenches and test pits. Level numbers, when noted, refer to and correlate with those found in the main Centre Pit stratigraphic sequence (see below and Fig. 5).

Level I. This is the upper humus or organic horizon which varies in thickness from 2 to 16 cm. and consists of an accumulation of partly to completely decomposed organic matter. Along sections of the various profiles, the relative thickness of the organic deposit is obviously influenced by cultural activities (wood detritus, faunal remains, etc.) and therefore can account for a number of localized variations in soil chemistry and drainage characteristics. Because of excessive drainage conditions and heavy surficial erosion, this surface organic layer is nearly absent in the South Unit and for similar reasons it is poorly defined along the lip area of the housepit.

Level III. This underlying reddish-brown horizon is the first mineral horizon which contains various concentrations of totally decomposed organic matter and which has undergone some form of oxidation and change of colour. It is either absent, discontinuous, or diffuse in the sloping portion of the South Unit. Where present, it varies in thickness from 3 to 16 cm.

Level IV. This is the yellow horizon or relatively unaltered parent material on the terrace. In the excavation and test areas, it consists of possible loess-like material, silty clay and dispersed sand and gravel. Intrusive elements (organic matter, etc.) do not appear to be frequent or extensive, thus suggesting a minimal amount of mechanical soil disturbance. The only exceptions to this pattern are found along the sloping edge of the terrace (South Unit and test trench below housepit II).

Various quantities of cultural material were found throughout this stratigraphic sequence with notable concentrations in the upper and middle zones of the organic horizon (Level I) and in the reddish-brown horizon (Level III). The lowest level at which artifacts occurred corresponds to the contact zone between Levels III and IV or to the upper 5 to 10 cm. of the yellow horizon (Level IV).

Housepit Stratigraphy

The semi-subterranean house feature (housepit I) consists of an ovoid depression (Figs. 3-4), approximately eight meters long and six meters wide. The depth from the center of the pit to the crest of the lip is approximately 65 cm. and that from the former to the average surrounding terrace level is approximately 45 cm. The following description of the stratigraphic sequence in the housepit is essentially based upon wall profile B (Fig. 5) which, at the close of our excavation, appeared to offer the clearest picture of a rather complex series of events. Profile B represents the northern wall of Irving's 1970 north trench.

Level I. This is the humus-organic horizon which, with the exception of the sometimes barren lip crest, is continuous with the level I described earlier for the area outside the housepit. It has variable thickness which increases toward the center of the depression. Some concentrations of organic matter occur along a few major cracks found within the pit itself, but other organic accumulations can only be interpreted as culturally derived (see below).

Level II. This corresponds to a yellowish spoil consisting of undifferentiated material which forms the bulk of the lip area as a result of the original housepit excavation; it is also likely that it contains some secondary excavation material (see below: Trench area). Discontinuous lenses of apparently the same material are present toward the inner slopes and center of the depression. The outer edges of this culturally deposited material were encountered in the excavation of both the North and Lip units; the work done in the latter actually truncated a large portion of this southwestern lip material. This level is missing in the general stratigraphic sequence of the terrace system.

Level III. This is a reddish horizon which appears to be continuous with that found outside the house depression. In places, however, it is less well defined, as large segments of it are more or less mixed with some of the above-mentioned lip material. Within the depression, just below the lip, it appears to be truncated, and those reddish lenses which are present toward the center of the pit area are likely to represent similar material which has been incorporated through creep or sliding into the pit spoil unit.

Level IV. The upper portion of this yellow horizon corresponds to the relatively unaltered terrace parent material described as Level IV in the terrace stratigraphic sequence. Within the Centre Pit Unit, it consists of silty clay and sparse pebbles and appears to be truncated and partly mixed with material from Levels II and III. The colours of Levels III and IV are slightly different from those of the corresponding horizons outside the housepit; this may be explained by the abrupt truncation and burial with spoil material from the original excavation which must have altered the dynamics of terrace soil development.

Level V. This is a thick layer of gravelly and pebbly material mixed with variable amounts of silt and sand which sometimes, along the assumed truncation zone, forms semi-isolated pockets or lenses (VA).

Level VI. This is a silty clay layer interspersed with clearly defined fine gravel and sand lenses. It shows definite lateral truncation and actually appears to form a narrow bench oriented along a north-south axis, just above the westernmost limit of the house floor area (see below).

Level VII. This lowermost layer corresponds to a sterile pebble and cobble unit interspersed with lenses of sand and silt. Also truncated, it overlaps in VIII with what is considered to be the floor zone (see below).

Level VIII. This particular unit of the profile represents a continuous reddish-and-black pocket oriented along the north-south axis and lying along the base of the west wall, just above or in contact with the westernmost traces of the floor area. It is comprised of silty material with a relatively high organic content and shows evidence of churning and folding. Two carbon samples were obtained from the base of this unit is what is considered to be the contact area with the floor zone.

The central area of the house depression (Fig. 5, Profile B, W2) shows evidence of a stratigraphic sequence which is more culturally induced and which has less direct relationships with the actual terrace profile. The major units are as follows:

1. The upper layer consists of a relatively thick organic deposit which is (partly?) continuous with that described earlier as Level I.
2. The underlying Trench unit (or upper organic pocket) has a very high organic content and contains a large number of cobbles and rock slabs. It appears to represent a (sequence of?) secondary prehistoric trenching or excavation in the center of a half-filled house depression. The unit labelled IIA probably represents the spoil from this secondary excavation. The base of this Trench unit appears to be underlain by a thin (discontinuous?) sterile gravelly layer.
3. Underlying the latter, one finds a mass of more or less undifferentiated gravelly rubble with relatively high organic content. An important internal feature of this unit is a series of large logs which appear to be oriented along a north-south axis. A better defined organic zone was found in contact with and just above the wood unit. This entire area of the profile, which is interpreted as being a roof-fall, appears to be underlain in places by very thin lenses of sterile sandy or gravelly material.
4. Below the roof-and-rubble zone, one finds a series of compacted discontinuous organic lenses separated by layers of gravelly material containing dispersed organic residue. This unit has also yielded some traces of wooden twigs or logs which likewise are oriented along a north-south axis. It is interpreted as a multiple floor zone and it is underlain by clean, sterile gravelly material.

This summarizes more or less the general stratigraphic situation found within the housepit area. Profile C (Fig. 5) which represents the southern wall of the 1973 excavation corresponds relatively well to the one we have just described. The major differences, which are mainly

quantitative, are found along the eastern zone of the depression (E2, E1) where, on the one hand, the stratigraphic units of the terrace matrix appear to be slightly different and, on the other hand, the area just inside the lip seems to have been subjected to much more complex disturbances than those noticed along the western edge of the pit.

At this time, a brief and preliminary interpretation of the housepit stratigraphic sequence can be read as follows:

1. The original pit was excavated to a depth of approximately 45 cm. below the actual terrace surface. This was done, at least along the western portion of the pit, in a step-like fashion. The width of the basal floor area appears to have been approximately two meters.
2. The original floor area consisted of sterile gravelly material, possibly covered with wooden materials.
3. The floor zone suggests a possible long (continuous?) occupational sequence likely involving re-building and/or re-excavating of portions of the housepit.
4. The recovered roof material consisted of a number of relatively large logs; given the overall dimensions of the inferred house structure and the time expenditure which would have been required for its construction, it is possible to assume the presence of a complex or at least massive roof structure.
5. Following the abandonment and starting with the slow (?) deterioration of the structure, the depression was filled by material originating from the roof structure itself, from the inner walls, and from the lip spoil material; elements of organic origin and wind-blown materials were also involved in this sequence of events.
6. Toward the end or stabilization of this back-filling process, the house depression was re-occupied and/or re-utilized, as evidenced by remains in the central Trench area. This and lesser cultural activities may have occurred more than once throughout the post-abandonment period.

No specific internal features, such as entrance (side) or post-molds, were discovered in the course of our excavation. It should be noted, however, that only a small portion of the actual housepit area has been touched and that significant structural features may yet be unearthed.

Traces of cultural activity occur throughout the stratigraphic succession of the house depression: in levels I, II, III, and VIII, in all the spoil and rubble zones, and in the Trench, Roof, and Floor units. Preliminary interpretation of some of these archaeological finds (see below) supports well the general sequence of events suggested by the above-described stratigraphic succession.

Cultural Content

The following description and discussion of the archaeological content of the Old Chief site should not be construed as much more than a partial commentary on the general potential of the site. For the sake of this presentation, the information has been sorted according to some of the major elements of an emerging occupational sequence which is represented along the portion of the terrace investigated thusfar.

Historic Manifestations

Evidence for recent and early historic occupation and utilization of the entire terrace area is common but erratic. One can find, scattered across the site area, features such as dead-falls, axe-cut stumps, and recent ground caches; other artifactual material may consist of empty rifle shells, buttons, tin cans of all kinds, etc. As noted earlier (p. C2), such traces appear to be common not only on the site itself but in the entire surrounding area. A number of accidental finds made along the upper portion of the upper terrace, below the site, suggest the presence of possibly numerous and/or extensive buried early historic (contact) deposits. Furthermore, recently gathered ethno-historical information indicates that the Old Chief site area was to a certain degree continuously occupied and/or utilized during the early historic period.

The investigated portion of the site has yielded little in terms of clearly defined historic components. Finds made around the housepit area correspond to those mentioned above for the entire site area. The upper organic horizon (level I) of the housepit depression has yielded a relatively great quantity of faunal material in association with a number of historic artifacts, this suggesting that it was used by historic Vunta Kutchin as either a temporary cache, a handy midden or possibly a useful camping spot.

Early Contact and Late Prehistoric Manifestations

All of the investigated sections of the site have yielded evidence pertaining to a late prehistoric occupation including a number of elements suggestive of an early Euro-Canadian contact situation. The most important zones are the North and Lip units and the house depression itself.

Artifacts recovered from the North and Lip units were for the most part found in association with relatively large concentrations of faunal remains. Interpreted as being refuse areas (see Appendix D), these deposits were all located in level I, the humus horizon, and sometimes in contact or partly mixed with the outer edge of the lip material (Level II). In some cases, the bone mass itself formed the bulk of this organic mat. The most diagnostic implements (Fig. 6)

found in these units are made of bone (beamer, flesher, blunt arrowhead, awls, etc.) and appear to compare favourably with specimens from the Klo-kut late assemblage (Morlan 1973). In addition, most of the excavation units have yielded various quantities of worked and/or used bones (see Appendix D and Stewart 1972).

A number of trade items, especially beads, were found in possible association with some of the above-mentioned traditional material. While this may be suggestive of an early contact situation, possibly prior to the actual arrival of Euro-Canadian traders in this general area, it should be noted that at this time our test excavation does not allow us to elaborate fully on the complexities of the late prehistoric-early historic transitional situation.

Stone tools which are considered to belong to the same and slightly earlier time period (Fig. 7) occur throughout the site, in the same organic horizon (level I). They consist primarily of retouched or utilized boulder spalls, tchi-thos, retouched flakes, side-scrapers, wedges and one partially ground axe made on slate. It is worth noting that the 1970 housepit trenches and the 1972 and 1973 Centre Pit tests and excavation have shown that the lower portion of the Organic horizon and the Trench area described earlier contain material which also appears to be related to a late segment of the Klo-kut Athapaskan sequence.

Earlier Cultural Manifestations

With the information at hand, it is possible to visualize a number of potential components which appear to pre-date the Klo-kut type of manifestation. Due to the limitation of our sample and the exploratory nature of our field-investigation, we can only divide the information into two major units: (1) that related to the original house occupation, and (2) that which is considered to pre-date the former.

1. The reality of a house-component is based on two unequally weighted lines of evidence. First, the stratigraphy clearly indicated that the housepit was occupied (and excavated) more than once. As noted earlier, the units located above the Roof-and-Rubble zone contain material which can be assigned to a late prehistoric Athapaskan manifestation. While very few artifacts have been found in the floor zone and associated units, what is now available is suggestive of a lithic technology which differs from that evidenced in the latter; it may even be different from that found in the lower portion of the Klo-kut sequence. And as such, the earlier house-component can be tentatively assigned to a period of time which pre-dated the earliest well-established Klo-kut manifestation that is, before 1,200 B.P. (Morlan 1973: ii and 153-161).

This interpretation is partly reinforced by one of two recently (1974) obtained radiocarbon dates. As mentioned earlier, both charcoal samples were collected from level VIII (see p.C5) which is believed to be a disturbed feature associated with the floor zone. The first sample was collected by Irving, in 1970, from the bottom of his north trench. According to him (personal communication in 1973), it was obtained from a level (reddish and black) which he considered at the time to be a floor surface or in contact with the floor and which apparently corresponds to our level VIII. It has yielded a date of < 180 B.P. (I-7784). The second sample collected in 1973 from the bottom of this reddish-and-black pocket has yielded a date of 1850 ± 165 B.P. or 100 A.D. (I-7785).

On the basis of our interpretation of the house sequence and taking into account the results of both assessments, the acceptable date is considered to be the older one (I-7785). The initial housepit occupation, which remains to be culturally labelled or identified, must have occurred sometime near the beginning of our era, at least 600 years prior to the first known prehistoric occupation of Klo-kut. It should be noted here that it is our belief that Klo-kut may yet yield traces of earlier cultural manifestations which would certainly reduce this 600 year gap in the middle Porcupine cultural sequence.

2. Most of the testing and excavation units have yielded archaeological remains which may be considered as either contemporaneous with or earlier than the initial housepit manifestation. It is still impossible to see clearly through this slow and complex accumulation of data, and, for the moment, we will have to be satisfied with a generalized presentation of a poorly understood prehistoric situation which is probably representative of a series of occupations of the terrace dating to and prior to the beginning of our era.

One important artifactual element is the occurrence of microblade technology. The first true microblade found at the site was located in a compacted organic pocket which corresponds to the contact area between the Trench unit and the log zone of the Roof-and-Rubble unit; the microblade was found in association with a few other stone tools and a small concentration of caribou bones. This particular situation and the numerous lithic remains found in the lip-spoil areas of the house depression indicate that the housepit was originally excavated in an area of the terrace which already contained at least a microblade component. Other microblades were found in the North and Lip units, in levels III and IV (Fig. 8).

Associated with the microblades in both the Centre Pit and the North units are a number of distinctive end scrapers (Fig. 9) which are all different from those found at Klo-kut. A relatively large number of similar finely made end scrapers were collected in 1970 from test areas located along the Old Chief right terrace, to the northeast of the 1973

excavations. They may or may not be exclusively associated with the microblades, but they certainly pre-date the late prehistoric material, having all been recovered from levels II, III, and IV.

Few diagnostic bifaces (Fig. 10) were discovered at the site, and most of these were located in disturbed portions of the deposit (spoil, rubble, etc.). This fragmentary evidence suggests a bifacial technology which appears to be foreign to both the Early Prehistoric period of Klo-kut, where bifaces have not yet been recognized, and the Late Prehistoric period which is mainly characterized by small bifaces including the widespread Kavik point (Morlan 1973: 481). The only complete specimen is that of a side-notched point which was discovered in a test pit more than 70 meters west of the house depression. To my knowledge it shows similarities to only one illustrated specimen which was described by Campbell (1962: 46, Plate 6, no. 10) as being part of a microblade-bearing component which he labelled Toyuk.

Among the other lithic specimens which, although they appear to pre-date the late Athapaskan continuum, may or may not be culturally associated with the microblade manifestation, one finds a number of large core tools (Fig. 11), including one chipped adze, a number of blade-like objects, large obsidian flakes (rare at Klo-kut), heavily weathered silt-stone flakes, etc. (Fig. 12). Again, all of the above-mentioned artifacts were found either in levels III and IV or in disturbed areas (spoil and rubble) in or near the house depression.

Discussion and Conclusion

Thusfar the type and/or quantity of information obtained from the Old Chief site does not allow us to make the usual attempt at archaeological normalization of the material into a number of formalized complexes or phases. Suffice it to say that preliminary work carried out at the site has provided us with evidence which appears to be representative of a lengthy and certainly complex occupation of the Old Chief terrace.

To summarize this somewhat blurred sequence, let us first note that there is definite evidence of a discontinuous historic occupation of the entire Old Chief terrace. More extensive archaeological work coupled with accumulating ethno-historical information is likely to provide us with the material needed for the characterization of this occupational sequence in terms of subsistence patterns.

There is also evidence suggestive of a possible early contact situation as well as a clear indication that the terrace was occupied during the Late Prehistoric period. While material characteristic of the Early Prehistoric period, as defined at Klo-kut (Morlan 1973), has yet to be discovered, we can assume, in view of the proximity of the Klo-kut site, that such remains must be present somewhere along the Old Chief terrace.

It is also probable that Old Chief, as well as Klo-kut itself, will yield information allowing us to fill what we may call the procedural gap which appears to exist between the bottom of the latter's sequence and the housepit-related manifestation of the former. With the housepit component, dated at around 100 A.D., we enter a rather poorly defined prehistoric phase in that the only truly diagnostic artifact consists of the semi-subterranean house itself.

Beyond this last identifiable occupation, we definitely lose whatever control we may have had on both the material content and the temporal aspect of the site's cultural manifestations. There is, however, evidence suggestive of multiple and/or sequential earlier occupations; in terms of their time placement, we can only note that some of the artifactual elements available are indicative of potentially great time depth when compared with material obtained from other areas of the northwest boreal region (including recently gathered assemblages from the northern rim of Old Crow Flats). Thus a possibilistic estimate of the age of these manifestations on the Old Chief terrace could certainly extend as early as 4000 B.C., within the range, for example, of Anderson's (1968) Northern Archaic Tradition. Even earlier remains are possible in view of recent palaeoenvironmental investigations which indicate that the entire terrace area, on the basis of its elevation, must have been available for human occupation as early as sometime between 11,000 and 7000 years ago, immediately following the final drainage of glacial lake Old Crow (Harington 1970: 38). Thus the Old Chief site has the potential to provide us with a cultural sequence which could span 9000 years and which will likely span 4000-5000 years.

An important aspect of the site, which could be brought to bear upon this time depth problem, has to do with its usefulness in terms of subsistence economy. The Old Chief site is located in the midst of an extensive cluster of archaeological deposits (including both the large Klo-kut village and numerous lookout sites) which all appear to be representative of a type of resource exploitation related to the systematic interception of caribou herds during their spring migration (Morlan 1973). Faunal remains from Old Chief (see Appendix D) suggest that there may also have been in this general area a fall-winter pattern of caribou exploitation, possibly related to northward shifts in the caribou wintering grounds. This suggestion of multi-seasonal occupation of the area is further strengthened by the fact that at Old Chief we have at least two semi-subterranean houses which are likely to have been used in winter.

While the Old Chief occupational sequence will probably prove to be less intensive than that found at Klo-kut, we can nevertheless visualize there a generalized form of subsistence pattern which centered primarily around caribou herd exploitation for at least the last 2000 years. Earlier manifestations at the site are obviously more problematic in terms of their subsistence orientation.

It is possible, however, to consider the establishment of the present-day caribou migratory pattern (with all its possible variations) across the Porcupine basin as dating back at least to that period of time which immediately followed the terminal phase of glacial lake Old Crow. In this light, an early post-Pleistocene caribou exploitation pattern in the eastern Old Crow/Porcupine Rivers confluence area, located at or in the near vicinity of the Old Chief site, becomes a viable hypothesis.

Acknowledgements. I would like to express my gratitude to Dr. W.N. Irving who, in addition to providing me with the opportunity to study the 1970 Old Chief collections and to undertake further study at the site, was kind enough to join us during the brief 1973 excavation. Thanks are also extended to the crew members, Paul F. Donahue, Abraham Peter, Peter Tizya, Ian Badgley and Damon Chevrier, as well as to Dr. Richard E. Morlan who has read and corrected these pages.

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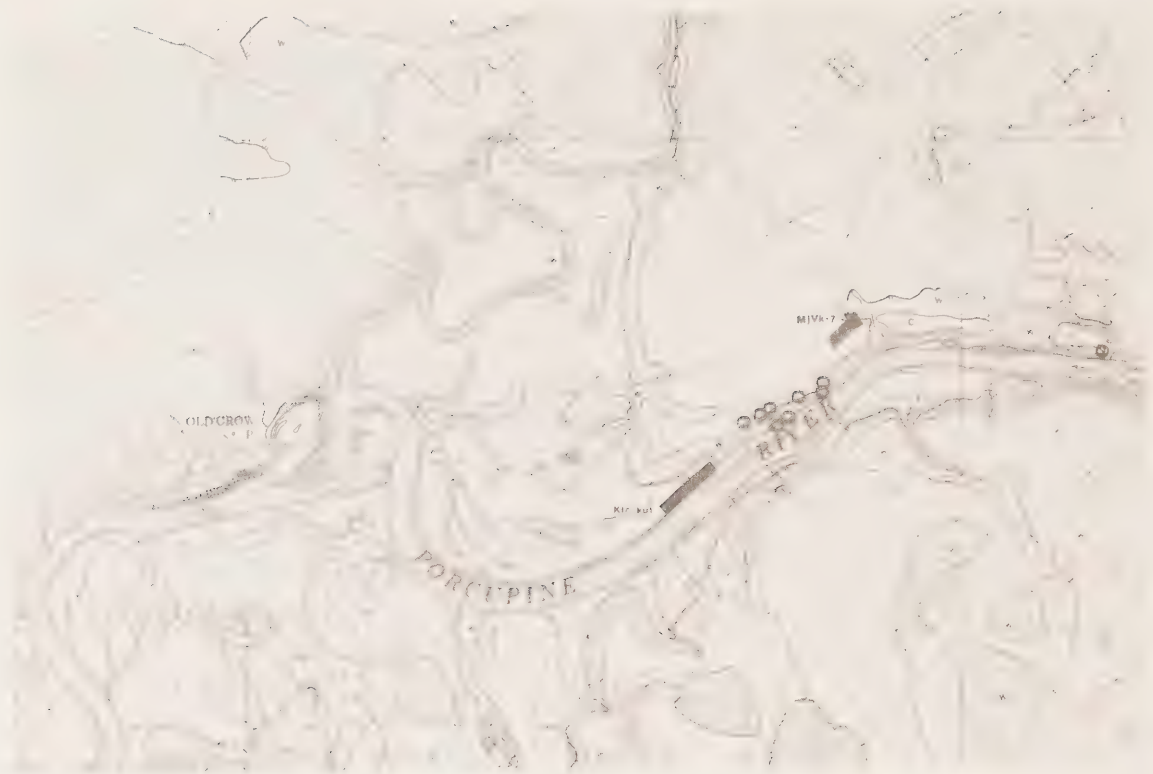


Fig. 1. Location of the Old Chief site (MjVk-7) in relation to the Klo-kut site, to numerous lookout sites and to the settlement of Old Crow.



Fig. 2. Aerial photograph of the Old Chief terrace; the site is in the foreground, and Klo-kut is located opposite the island visible in the background.



Fig. 3. House depression seen from the northeast; the Porcupine River is seen through the Old Chief Creek opening.

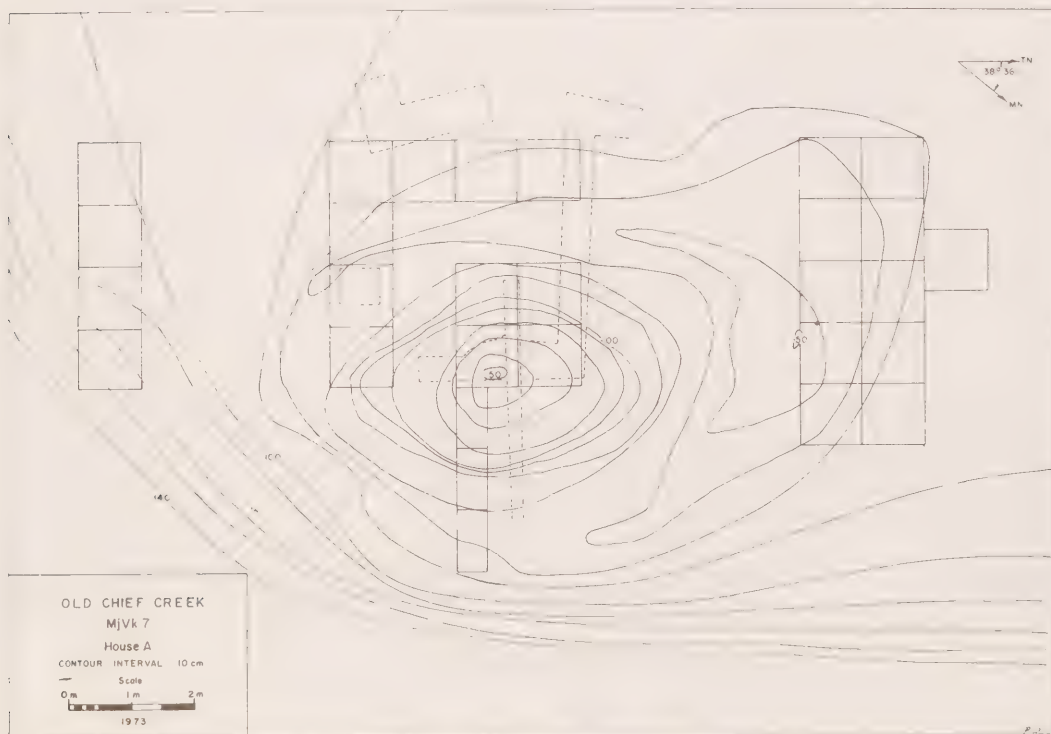


Fig. 4. Contour map of the housepit showing the 1973 excavation units and the 1970 test areas (dotted lines).

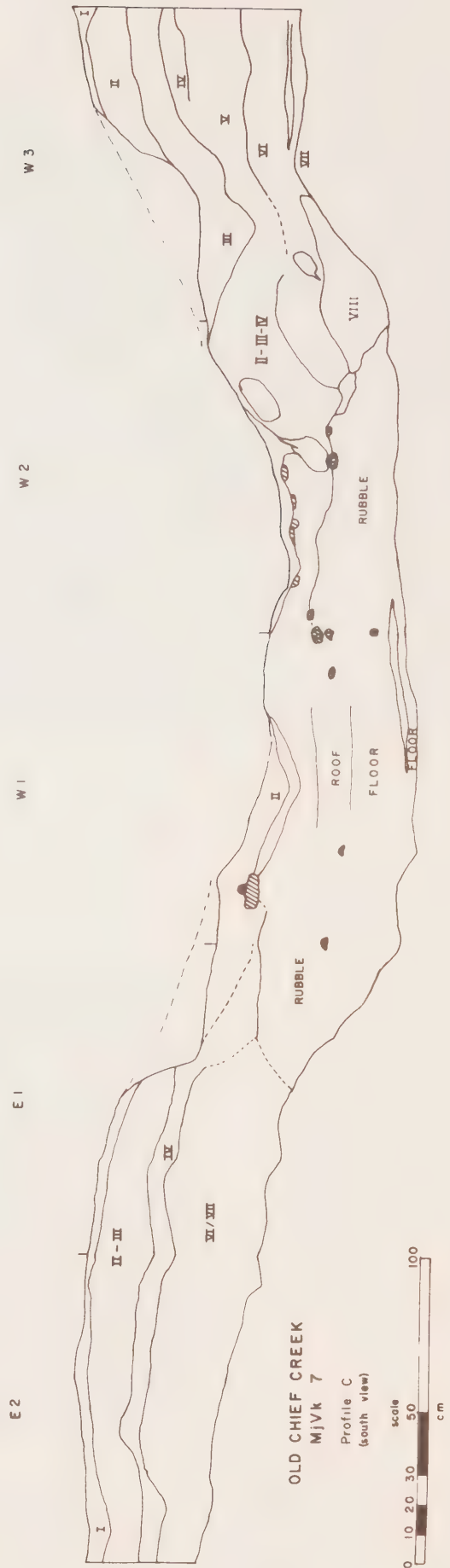
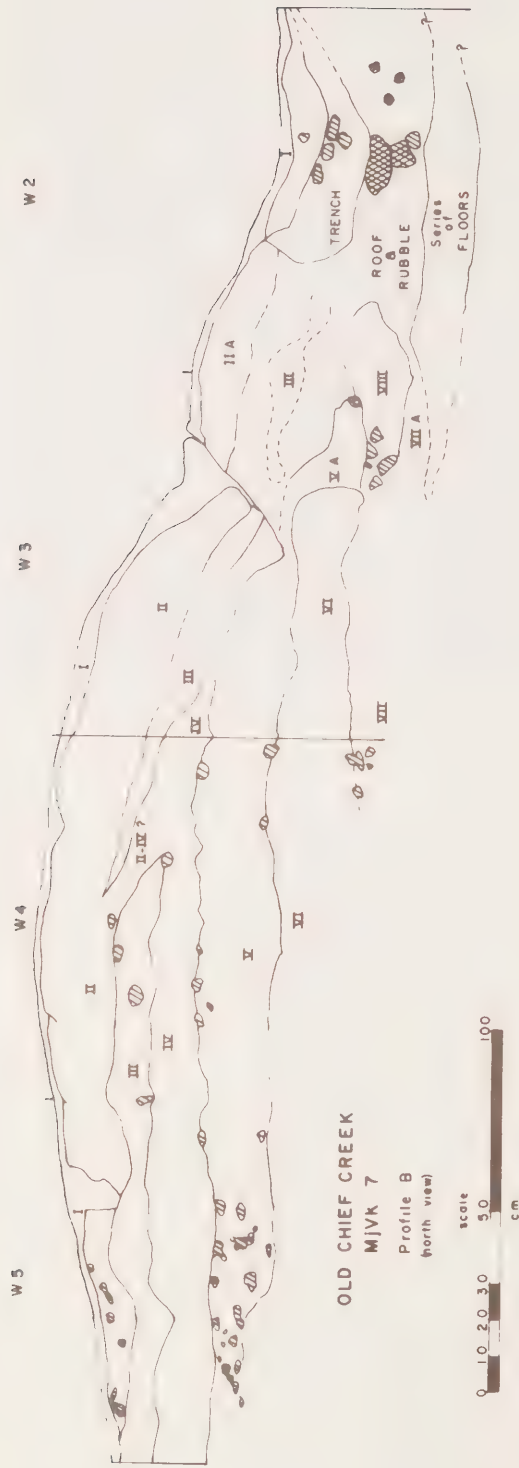


Fig. 5. Profiles B and C.



Fig. 6. Late Prehistoric bone tools.



Fig. 7. Late Prehistoric stone tools.



Fig. 8. Microblades



Fig. 9. End scrapers.



Fig. 10. Bifaces.



Fig. 11. Core tools.



Fig. 12. Miscellaneous lithic implements.

Appendix D

OLD CHIEF FAUNAL ANALYSIS (1973)

Paul F. Donahue
Aylmer, P.Q.

Introduction

This paper reports on the analysis of faunal remains obtained during the 1973 field season at the Old Chief site (MjVk-7). It was expected that the analysis would offer insights into the seasonality of occupation, diet, subsistence-related activity areas and procurement techniques, the isolation of living floors and the number of different occupations, as well as provide a means of comparing and contrasting Old Chief with other sites in the immediate vicinity. Faunal remains collected in previous field seasons have been reported by Stewart (1972). (See Table 1).

Evidence for 51 individual animals representing 12 species and approximately 3500 pounds of usable meat was present in the 1973 collection. Also, there were definite indications of spring and fall use of the area, a predominant dependence on caribou, the establishment of refuse areas close to camp, and at least one living floor within the house structure. At least two separate occupations, one associated with historic material and an earlier prehistoric one around the time of Christ were isolated in the excavation.

Field and laboratory methods

All excavating was done by trowel; faunal remains were either hand-picked or, in the case of floors or other areas of especial importance, collected after the matrix had been passed through an 1/8" mesh sieve. Specimens were deposited in level bags and brought to the National Museum of Man, Ottawa, for processing. Identification and aging were refined as much as possible, although most large unidentifiable fragments were considered to be caribou (*Rangifer tarandus*) unless sufficient reason existed to suspect otherwise. All determinations were made using comparative collections of both R.E. Morlan and of the Archaeological Survey of Canada of the National Museum of Man, and assistance was requested of R.E. Morlan, F. Stewart, or R. Bonnicksen. All specimens bearing upon interpretations concerning seasonality or minimum numbers were corroborated by Stewart. Calculations of number of elements, weight of elements, numerical density of elements per pit level in m³, minimum numbers of individuals, ages, and pounds of usable meat (based on Morlan 1972a, b) were tabulated by level and excavation unit. These results are presented in the accompanying tables

Problems of Analysis

Of the 150 species of mammals, birds, and fishes found in the area today (Morlan 1973: Tables 2-3, Scott and Cressman 1973), 14 have been recorded at Old Chief (Table 1). This discrepancy might be accounted for by one or more of the following: (1) certain bones were not deposited; (2) certain bones were deposited but not preserved; (3) certain bones were present but not recovered; and (4) certain bones were recovered but misidentified. These alternatives have been listed from most to least probable. Lack of deposition might be a reflection of dietary preference, availability and/or specificity of economic pattern (Table 8).

With respect to preservation, the soil horizons at Old Chief have pH values of 8.0-8.5 (alkaline) except for the organic layer or humus (Level 1) which gave a pH reading of 7.0 (neutral) and a diffuse reddish lens on the housepit lip beneath the humus which yielded a pH measurement of 5.5-6.0 (acid). The soil pH, then, should have favoured preservation in all but the diffuse reddish lens. However, preservation in all but the organic layer and an ash lens ranged from fair to poor (Table 8). The explanation could relate to duration of surface exposure, human treatment of the bones, or soil drainage. The terrace edge on which the pithouse was located is very well drained because of the soil matrix. This is reflected clearly in the absence of black spruce (*Picea mariana*) and the presence of more xerophytic species such as white spruce (*Picea glauca*). Drainage of this nature may have contributed to the oxidation of bone material. Bone which occurred in other layers than the organic horizon was usually burnt (Table 8), and therefore resistant to oxidation.

The third possibility implies inadequate collecting techniques. Some data may have been missed by our failure to use a finer mesh sieve at all times (see Thomas 1969). However, I doubt that our knowledge of subsistence-related activities would have been significantly increased by the incorporation of more precise techniques. We might, in fact, have suffered an overall loss of information because of the greater time involved in following such a procedure.

The fourth possibility, that of misidentification, is not very likely because of the independent checks provided by Stewart and Morlan. All corrections suggested by them were considered and usually accepted.

Description of Data

Summary descriptions are given by excavation units. These are areas which saw concentrated excavation in 1973, namely, the North Unit (N 8.5-10.5/W 1-5), South Unit (S 4/W 2-5), Lip Unit (N 1-4/W 2-5), and the Centre Pit Unit (N 3-4/W 1-3, E 1-2). These units are identified on the site map in Appendix C of this report.

North Unit

The North Unit excavations (Tables 3, 4) incorporated 11 m^2 and approximately 2.63 m^3 of matrix and yielded 7963 bone pieces for a density of 3371 elements per m^3 . This is the greatest bone density recorded for any of the excavation units. The remains were mostly in the organic layer with only 495 pieces occurring in the red horizon (Level III). One feature, an ash lens situated at the organic/red interface, had an unusually high concentration of bone.

Most of the evidence for minimum numbers of animals recovered at Old Chief came from the North Unit. The organic layer pH of 7.0 has probably favoured preservation. However, the "greenness" of the bone suggests relatively recent deposition. An associated thread spool and the paucity of lithic artifacts supports this inference. The identified fauna suggests year round usage with early summer and fall being emphasized. From the dense concentration of bone it may be assumed that the area was used for depositing refuse.

South Unit

This₃ area (Tables 3, 5) saw the least excavation with only 4 m² and .635 m³ being removed. However, 1368 bone pieces were recovered, making this the₃ second richest portion of the site. The calculated density (2154/m³) is second only to the North Unit, and, as in the latter, bones were concentrated in the organic layer. The two identified adult animals obtained from this unit could have been hunted at any time during the year, but the presence of caribou suggests either the spring or fall seasons.

Lip Unit

This excavation unit (Tables 3, 6) yielded 989 bones from 7 m² and 1.538 m³ for a density of 643/m³. Stratigraphic levels consisted of the organic, gravelly spoil (Level II), and red mineral (Level III) horizons. Densest bone concentrations occurred in the organic horizon. The spoil in N 1-2/W 5 however, had a greater number of bones than spoil in the other pits. This cluster was associated with lithic material suggesting an older and smaller refuse heap than that located in the North Unit. Fauna found in this unit represented five caribou, a hare, and a beaver. Most are associated with either the organic or spoil horizon.

Centre Pit Unit

In this unit (Tables 3, 7), 684 bones₃ were excavated from 4.5 m² and 2.24 m³ of matrix for a density of 306/m³. Although the bone count was not high, densities within the house pit increased appreciably as excavations continued through the roof fall down to the floor level. It was in these same levels (Upper organic zone, roof and rubble, floors) that all the bones were found except for one large mammal bone in level I. The occurrence of a Red-necked grebe (*Podiceps grisegina*) element suggests a June to September occupation while the caribou, varying hare (*Lepus americanus*), and muskrat (*Ondatra zibethica*) specimens could have been collected at any time of year. The only horizontal concentration, as such, is in the N 3/W 1 pit.

Level Summary

Exclusive₃ of the ash lens, bone densities by level₃ ranged from a high of 5699/m³ in the organic layer to a low of 224/m³ in the organic pocket only to increase again to 490/m³ as the floor area was reached (Table 8). The greatest minimum numbers of individuals varied horizontally

and vertically, but by grouping the excavation units one arrives at a possible 39 individuals in the organic layer, nine in the red mineral horizon and five on the floor. (More specific distributions are provided in the tables). Most bone elements in the red zone can probably be assigned to the organic layer. A bimodal density distribution indicates that the organic layer and house pit floor saw the most concentrated usages.

Worked bone

N 10.5/W 2.5, Level I

A left posterior epicondyl of the humerus was incised to form a serrated or toothed edge. Some teeth are missing but those present have wear polish. The function of this item is unknown.

An immature caribou antler cut at the pedicle.

A fragmented beamer or hide scraper (L 28.5 cm) made on a longitudinally split right metatarsal. Two sharpened edges are present.

N 9.5/W 5, Level III

An elongate metatarsal splinter (L 10.75 cm, W 0.9 cm, Th 0.6 cm) with indication of polish at one end.

N 9.5/W 4, Level I

A foetal to young immature caribou left tibia shaft with thin butchering marks across the mid-distal shaft portion. Cut probably made with a steel instrument.

An antler tine incised at base.

N 9.5/W 2, Level III

A badly etched possibly ground bone unipoint fragment (L 7.7 cm, W 1.0 cm, Th 0.4 cm).

N 8.5/W 4, Level I

Bone end scraper (L 25 cm), made on a caribou right metatarsal. The non-serrated convex working edge is on the distal end of the posterior side of the bone.

N 8.5/W 3, Level I

An adult caribou scapula portion that has been incised and snapped perpendicular to the long axis (L 11 cm).

A severed antler base.

Centre Pit Unit

Clean-up Level, provenience unknown

A bone fragment (L 1.96 cm X W 1.12 cm) that has been incised and snapped across the long axis.

A burnt fragment (L 4.35 cm X W 1.0 cm) having a fracture surface with striae indicating abrasion. Polish occurs on one edge and corner. Results were not necessarily man induced.

N 4/W 2, Floor

A fragment (L 1.6 cm X W 0.4 cm) having three worked planes that intersect at approximately 42° . Surfaces show some polish.

A burnt fragment (approximately 1.5 cm X 1 cm) that has been whittled with one flake removed via percussion from the interior surface. Whittling produced three different planes separated by rounded, worn edges.

A bifacially ground plano-concave edged bone fragment (L 5 cm X W 1.8 cm X Th 0.5 cm).

Lip Unit

N 1/W 5, Level I

A possible antler wedge (L 19 cm X W 4 cm) with numerous cut marks.

N 2/W 5, Level I

A four-lobed blunt arrowhead (L 7.8 cm X W 2.25 cm) with a split tang having collared hafting facets. Slot measures 4.4 cm X 0.6 cm. (See Morlan 1973: 295-296).

N 2/W 5, Level III

Fragment (L 2.6 cm X W 0.8 cm) with a polished internal surface on a man-induced fracture.

Summary

Such well-known bone and antler tools as the beamer, end of the bone scraper and blunt arrowhead are present at Old Chief, and one artifact, the serrated epicondyl implement, is new to the material culture inventory of the region. Technologically, however, the most interesting artifact is the whittled fragment from the house floor. This represents a new aspect of bone technology in an area which has revealed a long history of bone tool manufacture (See Irving and Harington 1973).

Discussion of species recovered

Caribou (*Rangifer tarandus*) move to their calving grounds on the tundra between mid-April and mid-June with most movement occurring in May. They return to the forest in the fall and a late August arrival at Old Crow is locally considered early. Most calves are born in mid-June and are considered to be sub-adult until the age of 2-2.5 years (Kelsall 1968: 151, 197). The yearly calf increment ranges from 6.9 to 26.6% with a mean of 15.9%.

The Porcupine herd usually winters far south of Old Crow, but when forage is more easily available they scatter throughout interior northern Yukon for the winter and have been hunted near Lone Mountain approximately 50 miles south of Old Crow (Balicki 1963:6). (This situation most recently occurred in the winter of 1973/74). Consequently, the presence of adult caribou remains does not necessarily reflect spring or fall migration kills.

The Varying Hare/Snowshoe Rabbit (*Lepus americanus*) occurs as far north as La Pierre House on the Bell River (Rand 1945:74). Varying hares usually inhabit willow thickets along streams but may be seen almost anywhere. They provide an easily available year-round meat source.

Muskrats (*Ondatra zibethica*) prefer marshes where vegetation is abundant, although some live in the banks of streams with little available marsh (Rand 1945:66-68). Old Crow Flats is an especially productive muskrat habitat. Muskrats are trapped in the spring for both their fur and meat. Since the meat is eaten by people and dogs, carcasses are often brought back to camp and kept for dog food. The general paucity of muskrat bones at Old Chief, however, suggests that either few animals were brought to camp or, if more were brought, they were ingested and deposited elsewhere.

Beavers (*Castor canadensis*) range as far north as the Porcupine River and although not numerous today, were prevalent in the immediate past. They would have been hunted for food and fur.

Voles (*Microtus* sp.) are burrowing animals which may occur almost anywhere. Evidence for the presence of a single vole at Old Chief is considered insignificant.

Arctic ground squirrels (*Spermophilus undulatus*) are a colonial, hibernating animal that live in the open parkland country of southwest Yukon, on alpine meadows above timber-line and on the Arctic tundra and into the edge of the forest (Rand 1945:47). Palmer (1954) notes that they may occur on any well-drained terrain. They should, then, be found in the immediate vicinity of Old Chief, though local records are not available.

Two genera of fox occur in northern Yukon. The genus *Vulpes* or Red fox resides north to the Porcupine River, while the genus *Alopex* or Arctic fox occurs on the Arctic coast, only occasionally spreading south to timberline (Rand 1945:33-34). It is assumed that the individual represented at Old Chief is a Red fox and is indicative of a fur-trapping economy.

Pine marten (*Martes americana*) would also seem indicative of fur-trapping. However, their presence at Kloo-kut in the prehistoric period (Morlan 1973: Table 80) brings this into question. Pine marten are found north of the Porcupine River. Although no provenience data are associated with the single element recovered, it has, on the basis of the condition of the bone, been assigned to Level I.

The Red-necked grebe (*Podiceps grisegina*) is the larger of the two grebes that occur in northern Yukon. These water-birds prefer slow-moving bodies of fresh water during the summer when they nest in the Old Crow area. With the onset of winter the grebes depart for warmer climes. Morlan (1973: Table 3) considers it a potentially useful species for subsistence.

Ptarmigan (*Lagopus* sp.) are also important for subsistence. They are present year-round in northern Yukon, but leave the Porcupine valley by the end of April (Morlan 1972a:67).

The evidence for ducks (family *Anatidae*) did not lend itself to more specific identification. Consequently, little more can be inferred than the recent occupants at Old Chief caught a duck.

White-fronted geese (*Anser albifrons*) are seasonal residents of the area and nest in Old Crow Flats. It is possible that the individual whose remains occur in Level I was procured in the flats and used as a food source.

Summary

The presence of fur-bearers in Level I and their absence in association with the house floor suggests two temporally distinct occupations, the most recent being a post-contact fur-trapping winter camp (Table 10). This seasonal inference is postulated on the usual practice of taking furs in winter when they are prime. Level I also yielded evidence for trips to Old Crow Flats for the purpose of procuring food and furs. The single muskrat associated with the house floor, however, is inconclusive in this regard since they may be found closer to Old Chief than the Flats.

It may be inferred that both occupations were probably winter camps that had been maintained long enough to intercept the spring caribou migration and, if abandoned over the summer, were reestablished soon

enough to exploit the south-moving fall herd. Furthermore, there is no evidence for differential hunting of caribou. As mentioned above, calves normally comprise 15.9% of the yearly herd. Of the 26 individuals represented at Old Chief, nine or 34.6% may be considered as sub-adults representing two years of calf crops.

Once killed, all parts of the caribou body appear to have been returned to camp. Assigning the bone elements ($N = 1199$) to categories of Axial skeleton, Forelimbs, Hindlimb, or Other (mainly phalanges and sesamoids) and calculating the percentages of each, one arrives at 22.10%, 22.44%, 18.60%, and 36.86%, respectively. The differences do not appear very meaningful. By way of contrast, if the same is done with *Lepus* remains ($N = 21$), figures of 14.29%, 47.62%, 38.10%, and 0% are obtained. Since evidence for only one skull among five individuals is present, we may infer either destruction of the fragile skull bones or deposition elsewhere.

Fish remains were completely absent at Old Chief. Since Old Crow residents net fish throughout the year, this is especially striking. Lack of preservation could be a major factor, however, I am not particularly convinced by this argument and suggest that either little or no fishing occurred at the site or fish were deboned and dried on the beach below and only the flesh brought to the camp.

Comparisons

Comparative data are available in Stewart's (1972) analysis of Old Chief as well as Morlan's analyses material from Cadzow Lake (1972a), Old Crow Flats (1972b), and Klo-kut (1973). Only the historic material of each site is considered if more than one major time period was recognized, and each is compared to the 1973 Old Chief fauna collection. An insufficient sample from the prehistoric occupation at Old Chief precludes any valid comparisons with the appropriate levels of other sites.

Stewart (1972) identified five groups of animals, namely caribou, moose, beaver, duck, and wolf or dog. No evidence for moose or dog/wolf was found by me in the 1973 collection. Caribou bones comprised 98.29% of Stewart's sample. In terms of minimum numbers of individuals, caribou represented 71.4% of the sample, and the other four species accounted for 7.1% each. Evidence for seven adult and four subadult caribou was present. Although there are differences in our respective analyses, there is no disagreement regarding identifications.

Morlan's (1972b) report on NbVk-1, a recent fish camp situated in Old Crow Flats, includes an extensive discussion of fauna. His inventory was appreciably different from that at Old Chief which was expected in view of the different locations, seasons of occupations, and activities at the two sites. Detailed comparisons would not be especially useful given these considerations.

The Cadzow Lake report (Morlan 1972a) is more suitable for comment. This site (MjVi-1) is situated some 30 river miles upriver from Old Chief and has three historic occupations; *ca.* 1850, *ca.* 1880, and 1933. Morlan considers this site to have been established three separate times for the express purpose of intercepting northbound caribou.

Species present at Cadzow Lake were generally similar to those at Old Chief. Differences include the presence at Cadzow Lake of bear and marmot, but the absence there of Pine Marten, Red-necked grebes, or Voles. These differences are hardly meaningful. Of more significance is the pattern of the decreasing percentages of caribou, the increasing importance of fur-bearing mammals and, concomitantly, a fur-trapping economy. The inverse correlation of caribou to other fauna, especially fur-bearers is thought by Morlan to reflect increasing interest in furs and fish. By way of comparison, the percent of caribou individuals to non-caribou individuals at Cadzow Lake was 35.3% (1850), 23.5% (1880), and 12.5% (1933) while a figure of 56.1% was calculated for historic occupation at Old Chief.

A mile or so downstream from Old Chief is the Klo-kut site (MjVl-1). Although a long occupational sequence is available, only the historic period as represented in the west half of the clearing is considered here. From this occupation Morlan (1973: Tables 77-79) recovered 12,871 bones in 2.124 m³ (75 ft³) of matrix for a density of 6059.79 bones per m³. This density calculation compares well with that from Level I at Old Chief (i.e. 5699/m³). His sample consisted of 13 species of mammals, 16 species of birds, and an unknown number of fish. Caribou individuals represented 32.9% of the total faunal assemblage and 53.1% of the mammals. Of the 26 caribou individuals, 18 (69.2%) were adult, 3 (11.5%) were immature, and 5 (19.2%) were foetal. Sub-adults then totalled 30.7% of the caribou herd.

Conclusion

By far the most important food source at Old Chief was caribou, with 25 individuals representing 56.1% of the sample population being assigned to the historic period. Foetal caribou, muskrat, a White-fronted goose, and a red-necked grebe permit one to infer a spring occupation, while immature caribou specimens indicate fall usage of the site.

The increased percentage of fur-bearers in the recent period, and the association of a winter house with the earlier occupation offer evidence of winter encampments. That no less than two distinct encampments took place is supported by a bimodal bone density distribution and different faunal assemblages of which the most recent had a high proportion of fur-bearers in evidence. Hide processing is indicated by the bone beamer and scraper, and bird hunting by the blunt arrowhead. Parts of whole caribou were brought back to the site and processed, but fish, if consumed, were probably processed down on a lower terrace or on the beach.

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	<u>bone elements</u>	<u>% bone elements</u>	<u>minimum number</u>	<u>% of minimum number</u>
Caribou	11294	99.50	17 ad 9 imm	32.08 16.98
Varying hare	21	.18	5 ad	9.43
Muskrat	5	.04	2 ad 1 imm	3.77 1.89
Beaver	2	.01	1 ad	1.89
Vole	1	.01	1 ad	1.89
Arctic ground squirrel	5	.04	1 ad	1.89
Fox	1	.01	1 ad	1.89
Pine marten	1	.01	1 ad	1.89
Ptarmigan	1	.01	1 ad	1.89
Red-necked Grebe	1	.01	1 ad	1.89
Duck	1	.01	1 ad	1.89
White-fronted goose	3	.03	1 ad	1.89
Moose*	5	.04	1 ad	1.89
Dog or wolf*	1	.07	1 ad	1.89
Unidentified mammal	8	.07	8	15.09
Total	11350	99.98	53	100.03

Table 1. Total classified fauna at Old Chief
(* Identified by Stewart, 1972)

Total pieces of bone	11,004
Total weight (grams) of bone	28,922.85
Average weight of bone	2.63 gms.
Total excavated matrix	6.77m ³
Average bone density per m ³	1625.41
Number of levels yielding bone	84
Average weight of bone per level	344.32 gm
Average number of bones per level	131
Weight range per level	.05-6082.22 gm
Number range per level	1-2437
Numerical density per level range	7-26770/m ³
Percentage of identifiable elements	14%

Table 2

Trench	matrix m ³	bone pieces	density/m ³	level
N 10.5/W 2.5	.100	2677	26770	I
	.070	114	1629	III
N 9.5/W 1-5	.470	3096	6587	I
	.580	312	538	III
	.012	230	19167	Ash
N 8.5/W 1-5	.410	1465	3573	I
	.720	69	96	III
N 4/W 2-3	.590	104	202	Organic pocket
	.250	30	120	II, III, IV
	.415	36	87	Floor
N 3/E 1-2, W 1-3	.050	59	1180	I
	.490	44	94	III, IV, V
	.110	53	482	Organic pocket
	.100	68	680	II, III, IV
	.250	290	1160	Floor
N 1-4/W 5	.248	708	2855	I
	.100	122	1220	II
	.110	9	82	III
N 1/W 2-4	.080	147	1837	I
	.150	1	7	II
	.130	2	15	III
S 4/W 2-5	.305	1325	4344	I
	.330	43	130	III

Table 3

	D15 Level				total minimum number	ages	pounds of usable meat
	Ash minimum number	Ash minimum number	III minimum number	IV minimum number			
caribou	13	2	3	1	17	10 ad 5 imm 2 fet	2146
varying hare	2				2		3
muskrat	2		1		2	1 ad 1 imm	2 1.5
beaver							
vole	1				1	ad	
ground squirrel	1				1	ad	1
fox	1				1	ad	4
pine marten	1?				1	ad	
red-necked grebe							
ptarmigan	1				1	ad	1.5
duck	1		1		1	ad	1.5
white-fronted goose	1				1	ad	5.6
large mammal			2		2		
small mammal			2		2		
totals	24	2	9	1	32		2166.1
total bone pieces	7238	230	495	8			
m ³ of matrix	.980	.012	1.37				
bone density per m ³	7486	19167	361				

North Unit

Table 4

	Level				ages	pounds of usable meat
	minimum number I	minimum number III	minimum number IV	total minimum number		
caribou	1	1	1	1	ad	156
varying hare	1		1	1	ad	1.5
muskrat						
beaver						
vole						
ground squirrel						
fox						
pine marten						
red-necked grebe						
ptarmigan						
duck						
white-fronted goose						
large mammal	1		1	?	?	
small mammal						
totals	3	1	3	2		157.5
total bone pieces	1325	43	3			
m ³ of matrix	.305	.330	0			
bone density per m ³	4344	130	0			

South Unit

Table 5

	Level			total minimum number	ages	pounds of usable meat
	I minimum number	II minimum number	III minimum number			
caribou	5	2	1	5	3 ad 2 imm	676
varying hare	1			1	ad	1.5
muskrat						
beaver		1		1	ad	38.5
vole						
ground squirrel						
fox						
pine marten						
red-necked grebe						
ptarmigan						
duck						
white-fronted goose						
large mammal	1			1	?	?
small mammal						
totals	7	3	1	8		716
total bone pieces	855	123	11			
m ³ of matrix	.328	.250	.240			
bone density per m ³	2607	492	46			

Lip Unit

Table 6

	Level						ages	pounds of usable meat
	minimum number I	minimum number III, IV, V	minimum number Organic Pocket	minimum number, roof and rubble	minimum number Floor	total minimum number		
caribou			1	1?	1?	3?	ad	468
varying hare					1	1	ad	1.5
muskrat					1	1	ad	2
beaver								
vole								
ground squirrel								
fox								
pine marten								
red-necked grebe					1	1	ad	?
ptarmigan								
duck								
white-fronted goose								
large mammal	1		1			2	?	?
small mammal				1	1	2	?	?
totals	1		2	2	5	10		471.5
total bone pieces	59	44	157	98	326			
m ³ of matrix	.05	.470	.700	.350	.665			
bone density per m ³	1180	94	224	280	490			

Pit Centre Unit

Table 7

	Condition of bone	Percent burnt	m^3 of matrix	Total bone pieces	Bone density per m^3
I	excellent	20	1.66	9477	5699
II	poor	75	.25	123	492
III	poor	65	2.41	593	246
Ash	excellent	100	.01	230	19167
IV	good	0	.00	11	000
Organic Pocket	poor	100	.70	157	224
Roof and Rubble	fair	85	.35	98	280
Floor	poor	85	.67	326	490

Table 8

General summary of bone by level

		I	II	Ash	III	IV	Organic Pocket	Roof and Rubble	Floor	Total minimum number	Pounds of usable meat	Percent of individuals
caribou	(ad)	14	1	2	4	1	1	1	1	17	2652	33.33
	(imm)	7	1							7	728	13.73
	(fet)	2			1					2	66	3.92
varying hare		4							1	5	7.5	9.80
muskrat	(ad)	1			1				1	2	4	3.92
	(imm)	1								1	1.5	1.96
beaver			1							1	38.5	1.96
vole		1								1	?	1.96
ground squirrel		1								1	1	1.96
fox		1								1	4	1.96
pine marten		1?								1	?	1.96
red-necked grebe									1	1	?	1.96
ptarmigan		1								1	1.5	1.96
duck		1		1						1	1.5	1.96
white-fronted goose		1								1	5.6	1.96
large mammal		3			1	1				5?	?	9.80
small mammal					1	1	1			3?	?	5.88
Totals		39	3	3	8	3	2	1	4	51	3511.1	99.98%

1973 Old Chief Fauna

Table 9

